Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania

RESEARCH BULLETIN

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2015 Journal articles, Conference Proceedings, Book Reports, Thesis and Dissertations

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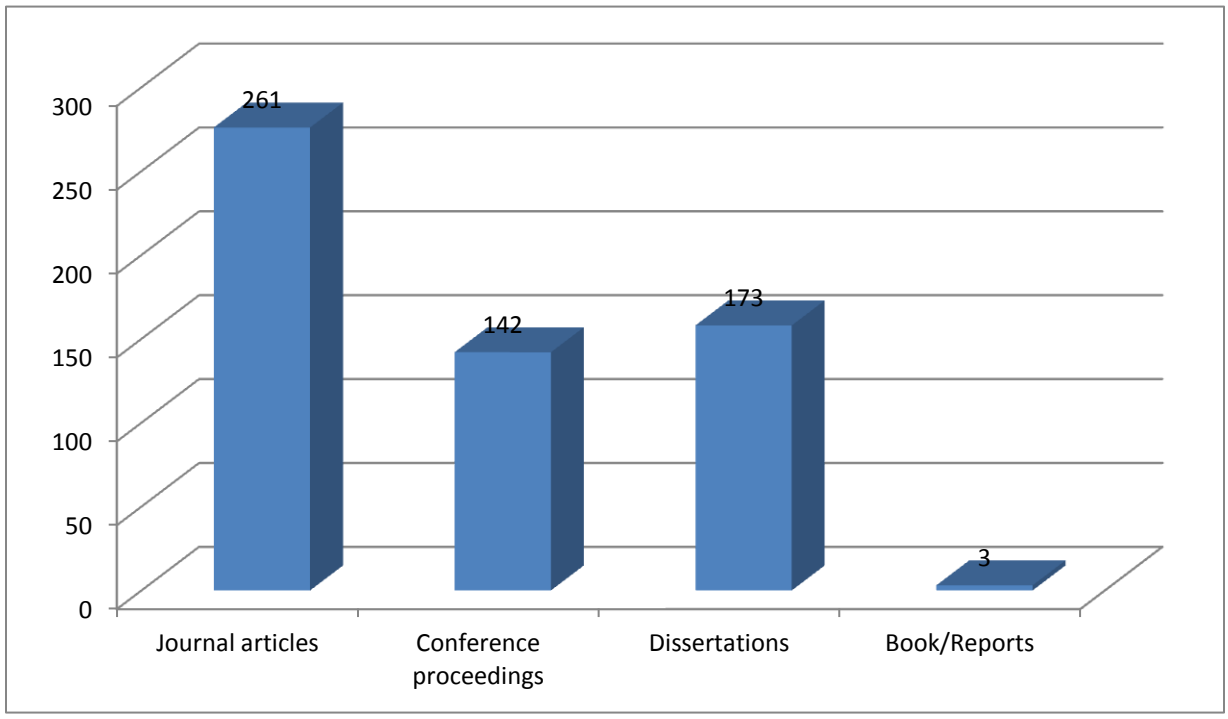
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Information to readers

This bulletin is intended to provide information on research by members of Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania. It provides summaries of publications during the proceeding calendar year, including dissertations, thesis, journal articles and conference proceedings. Members are requested to provide the Editor with summaries of their publications and ongoing research in electronic form for inclusion in the Bulletin. Abstract should be limited to 200 words.

Editorial

The current volume (Volume 18 No.1) contains total of 579 abstracts (261 journal articles, 173 Dissertations, 142 Conference proceedings and 3 book/research reports published in 2015.



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CHAPTER ONE: AUTHOR NAMES (A- M).

1. **Aamodt H, Mohn SC, Maselle S, Manji KP, Willems R, Jureen R, Langeland N, Blomberg B. Genetic relatedness and risk factor analysis of ampicillin-resistant and high-level gentamicin-resistant enterococci causing bloodstream infections in Tanzanian children. *BMC infectious diseases*. 2015; 15(1):1.**

   Background: While enterococci resistant to multiple antimicrobials are spreading in hospitals worldwide, causing urinary tract, wound and bloodstream infections, there is little published data on these infections from Africa. **Methods:** We assessed the prevalence, susceptibility patterns, clinical outcome and genetic relatedness of enterococcal isolates causing bloodstream infections in children in a tertiary hospital in Tanzania, as part of a prospective cohort study of bloodstream infections among 1828 febrile children admitted consecutively from August 2001 to August 2002. **Results:** Enterococcal bacteraemia was identified in 2.1% (39/1828) of admissions, and in 15.3% (39/255) of cases of culture-confirmed bloodstream infections. The case-fatality rate in children with Enterococcus faecalis septicaemia (28.6%, 4/14) was not significantly different from those with Enterococcus faecium septicaemia (6.7%, 1/15, $p = 0.12$). E. faecium isolates commonly had combined ampicillin-resistance and high-level gentamicin resistance (HLGR), (9/17), while E. faecalis frequently displayed HLGR (6/15), but were ampicillin susceptible. None of the tested enterococcal isolates displayed vancomycin resistance by Etest or PCR for vanA and vanB genes. Multi-locus sequence-typing (MLST) showed that the majority of E. faecium (7/12) belonged to the hospital associated Bayesian Analysis of Population Structure (BAPS) group 3–3. Pulsed-field gel electrophoresis (PFGE) indicated close genetic relationship particularly among E. faecium isolates, but also among E. faecalis isolates. There was also correlation between BAPS group and PFGE results. Risk factors for enterococcal bloodstream infection in univariate analysis were hospital-acquired infection and clinical diagnosis of sepsis with unknown focus. In multivariate analysis, neonates in general were relatively protected from enterococcal infection, while both prematurity and clinical sepses were risk factors. Malnutrition was a risk factor for enterococcal bloodstream infection among HIV negative children. **Conclusion:** This is the first study to describe bloodstream infections caused by ampicillin-resistant HLGR E. faecium and HLGR E. faecalis in Tanzania. The

isolates of E. faecium and E. faecalis, respectively, showed high degrees of relatedness by genotyping using PFGE. The commonly used treatment regimens at the hospital are insufficient for infections caused by these microbes. The study results call for increased access to microbiological diagnostics to guide rational antibiotic use in Tanzania.

2. **Abbas ZG. Reducing diabetic limb amputations in developing countries. *Expert Review of Endocrinology & Metabolism*. 2015; 10(4):425-34.**

   Among all the diabetes complications, diabetic foot complications are associated with the highest morbidity and mortality. Across the globe, 40–60% of all lower extremity non-traumatic amputations are performed in patients with diabetes. The most important intervention in reducing diabetic limb amputation in developing countries is the education of patients about proper limb care. Cost-effective education should be targeted for both healthcare workers and patients. One of these programs is the Step by Step Foot Project, which was piloted and carried out in Tanzania and India. In this review, the author explores the feasible ways of reducing diabetic limb amputation which can be achieved through a trained diabetes workforce working in an effective system of care that focuses on the education of both the healthcare provider and the patient.

3. **Abbasi KH, Shafiq M, Ahmad JK. "Performance of larval grafted queen vs. queen produced through natural method in Apis mellifera." 2015.**

   Trials were conducted to determine the efficacy of larval grafted queen in comparision with queen Produced naturally in order to mensurate the performance of these two methods with parameters brood Area (BA), mite infestation (MI), honey harvest (HH), absconding tendency (AT), and swarming Tendency (ST) the results showed that larval grafting method of queen production (T2) had significant ($p>0.05$) results over natural method of queen production T2). The average brood area was 1026.7 sq, Inch and 1561.7 sq. inch in natural method (T1) and in larval grafting method (T2) showed the highly significant difference. The average AT observed 0.00and 38.66 in (T2) and (T1) again showed highly significant difference between the two methods. Similarly the average MI and ST in both types was 14.88 (T2), 64.00 (T1) and 16.00 (T2), 53.88 (T1) respectively depicting a significant difference.

4. **Abeid M, Muganyizi P, Massawe S, Mpembeni R, Darj E, Axemo P. Knowledge and attitude towards rape and child sexual abuse–a community-based cross-sectional study in Rural Tanzania. *BMC public health*. 2015; 15(1):1.**

Background: Violence against women and children is globally recognized as a social and human rights concern. In Tanzania, sexual violence towards women and children is a public health problem. The aim of this study was to determine community knowledge of and attitudes towards rape and child sexual abuse, and assess associations between knowledge and attitudes and socio-demographic characteristics. **Methods:** A cross-sectional study was undertaken between May and June 2012. The study was conducted in the Kilombero and Ulanga rural districts in the Morogoro Region of Tanzania. Men and women aged 18–49 years were eligible for the study. Through a three-stage cluster sampling strategy, a household survey was conducted using a structured questionnaire. The questionnaire included socio-demographic characteristics, attitudes about gender roles and violence, and knowledge on health consequences of rape. Data were analyzed using the Statistical Package for Social Sciences (SPSS) software, version 21. Main outcome measures were knowledge of and attitudes towards sexual violence. Multivariate analyses were used to assess associations between socio-demographic characteristics and knowledge of and attitudes towards sexual violence. **Results:** A total of 1,568 participants were interviewed. The majority (58.4%) of participants were women. Most (58.3%) of the women respondents had poor knowledge on sexual violence and 63.8% had accepting attitudes towards sexual violence. Those who were married were significantly more likely to have good knowledge on sexual violence compared to the divorced/separated group (AOR = 1.6 (95% CI: 1.1-2.2)) but less likely to have non-accepting attitudes towards sexual violence compared to the single group (AOR = 1.8 (95%CI: 1.4-2.3)). Sex of respondents, age, marital status and level of education were associated with knowledge and attitudes towards sexual violence. **Conclusions:** Our study showed that these rural communities have poor knowledge on sexual violence and have accepting attitudes towards sexual violence. Increasing age and higher education were associated with better knowledge and less accepting attitudes towards sexual violence. The findings have potentially important implications for interventions aimed at preventing violence. The results highlight the challenges associated with changing

attitudes towards sexual violence, particularly as the highest levels of support for such violence were found among women.

5. **Abeid M, Muganyizi P, Mpembeni R, Darj E, Axemo P. A community-based intervention for improving health-seeking behavior among sexual violence survivors: a controlled before and after design study in rural Tanzania. *Global health action*. 2015; 8.**

Background: Despite global recognition that sexual violence is a violation of human rights, evidence still shows it is a pervasive problem across all societies. Promising community intervention studies in the low- and middle-income countries are limited. **Objective:** This study assessed the impact of a community-based intervention, focusing on improving the community's knowledge and reducing social acceptability of violence against women norms with the goal to prevent and respond to sexual violence. **Design:** The strategies used to create awareness included radio programs, information, education communication materials, and advocacy meetings with local leaders. The intervention took place in Morogoro region in Tanzania. The evaluation used a quasi-experimental design including cross-sectional surveys at baseline (2012) and endline (2014) with men and women aged 18–49 years. Main outcome measures were number of reported rape cases at health facilities and the community's knowledge and attitudes toward sexual violence. **Results:** The number of reported rape events increased by more than 50% at health facilities during the intervention. Knowledge on sexual violence increased significantly in both areas over the study period (from 57.3 to 80.6% in the intervention area and from 55.5 to 71.9% in the comparison area; $p<0.001$), and the net effect of the intervention between the two areas was statistically significant (6.9, 95% CI 0.2–13.5, $p=0.03$). There was significant improvement in most of the attitude indicators in the intervention area, but not in the comparison area. However, the intervention had no significant effect on the overall scores of acceptance attitudes in the final assessment when comparing the two areas (−2.4, 95% CI: −8.4 to 3.6, $p=0.42$). **Conclusions:** The intervention had an effect on some indicators on knowledge and attitudes toward sexual violence even after a short period of intervention. This finding informs the public health practitioners of the importance of combined strategies in achieving changes.

6. **Abeid M. Knowledge and Attitude towards Rape and Child Sexual Abuse-community-based cross-sectional study in Rural Tanzania. *3rd MUHAS Scientific Conference, 2015.***

Background: Violence against women and children has gained international recognition as a grave social and human rights concern in the last few decades. **Aim:** To determine community knowledge and attitude towards rape and child sexual abuse, and assess associations between knowledge and attitude with socio-demographic characteristics. **Methods:** A cross-sectional study was undertaken between May and June 2012. The study was conducted in Kilombero and Ulanga rural districts in Morogoro Region of Tanzania. Through a three stage cluster sampling a household survey was conducted. In each household randomly selected eligible member was interviewed face to face using a structured questionnaire. The questionnaire included socio-demographic characteristics, attitudes about gender roles and violence, causes and health consequences of rape. Analysis was done using statistical Package for Social Sciences (SPSS) version 21. Main outcome measures were knowledge and attitude towards sexual violence. Bivariate and multivariate analyses were used to assess associations between socio-demographic characteristics and knowledge and attitude towards sexual violence. **Results:** A total of 1,568 participants were interviewed. Majority (58.4%) of participants were females. Most (58.3%) of female respondents had poor knowledge on sexual violence and 63.8% had accepting attitude towards sexual violence. Those who were married were significantly more likely to have good knowledge on sexual violence compared to divorced/separated group (AOR=1.562 (95%CI: 1.087-2.245). Sex of respondents, age, marital status and level of education were associated with knowledge and attitude towards sexual violence.**Conclusions:** Our study showed that these rural communities have poor knowledge on sexual violence and accepting attitudes towards sexual violence. Knowledge and attitude towards sexual violence is correlated with socio-demographic characteristics.

7. **Abioye AI, Isanaka S, Liu E, Mwiru RS, Noor RA, Spiegelman D, Mugusi F, Fawzi WW. Gender differences in diet and nutrition among adults initiating antiretroviral therapy in Dar es Salaam, Tanzania. *AIDS care*. 2015; 27(6):706-15.**

Human immunodeficiency virus (HIV)-infected males have poor treatment outcomes after initiation of antiretroviral therapy (ART) compared to HIV-infected women. Dietary factors might mediate the association between sex and disease progression. However, the gender difference in diet among HIV-infected individuals in sub-Saharan Africa is largely unknown. The objective of this study was to examine differences in dietary intake among HIV-infected men and women. We conducted a cross-sectional analysis of dietary questionnaire data from 2038 adults initiating ART in Dar es Salaam, Tanzania to assess whether nutrient adequacy differed by sex. We dichotomized participants' nutrient intakes by whether recommended dietary allowances (RDAs) were met and estimated the relative risk (RR) of meeting RDAs in males using binomial regression models. We also estimated the mean difference in intake of foods and food groups by gender. We found poorer dietary practices among men compared to women. Males were less likely to meet the RDAs for micronutrients critical for slowing disease progression among HIV patients: niacin (RR = 0.39, 95% confidence interval [CI]: 0.27 to 0.55), riboflavin (RR = 0.81, 95% CI: 0.73 to 0.91), vitamin C (RR = 0.94, 95% CI: 0.89 to 1.00), and zinc (RR = 0.06, 95% CI: 0.01 to 0.24). Intake of thiamine, pantothenate, vitamins B6, B12, and E did not vary by gender. Males were less likely to eat cereals (mean difference [servings per day] = −0.21, 95% CI: −0.44 to 0.001) and vegetables (mean difference = −0.47, 95% CI: −0.86 to −0.07) in their diet, but more likely to have meat (mean difference = 0.14, 95% CI: 0.06 to 0.21). We conclude that male HIV patients have poorer dietary practices than females, and this may contribute to faster progression of the disease in males.

8. **Adesina AM. Proceedings of the African Pathologists Summit; March 22–23, 2013; Dakar, Senegal. *Archives of Pathology & Laboratory Medicine*. 2015; 139(1).**

Background: This report presents the proceedings of the African Pathologists Summit, held under the auspices of the African Organization for Research and Training in Cancer. **Objectives**.--To deliberate on the challenges and constraints of the practice of pathology in Sub-Saharan Africa and the avenues for addressing them. Participants.--Collaborating organizations included the American Society for Clinical Pathology; Association of Pathologists of Nigeria; British Division of the International Academy of Pathology; College of Pathologists of East, Central and Southern Africa; East African Division of the International Academy of Pathology; Friends of Africa-United States and Canadian

Academy of Pathology Initiative; International Academy of Pathology; International Network for Cancer Treatment and Research; National Cancer Institute; National Health and Laboratory Service of South Africa; Nigerian Postgraduate Medical College; Royal College of Pathologists; West African Division of the International Academy of Pathology;and Faculty of Laboratory Medicine of the West African College of Physicians. Evidence.--Information on the status of the practice of pathology was based on the experience of the participants, who are current or past practitioners of pathology or are involved in pathology education and research in Sub- Saharan Africa. Consensus Process.--The deliberations were carried out through presentations and working discussion groups. **Conclusions.--**The significant lack of professional and technical personnel, inadequate infrastructure, limited training opportunities, poor funding of pathology services in Sub-Saharan Africa, and their significant impact on patient care were noted. The urgency of addressing these issues was recognized, and the recommendations that were made are contained in this report.

9. **Adjuik M, Krishna S, Zongo I, Alemayehu BH, Adam I. Clinical Determinants of Early Parasitological Response to ACTs in African Patients with Uncomplicated Falciparum Malaria: *A literature Review and Meta-Analysis of Individual Patie*. 2015.**

   Background: Artemisinin-resistant Plasmodium falciparum has emerged in the Greater Mekong sub-region and poses a major global public health threat. Slow parasite clearance is a key clinical manifestation of reduced susceptibility to artemisinin. This study was designed to establish the baseline values for clearance in patients from Sub-Saharan African countries with uncomplicated malaria treated with artemisinin-based combination therapies (ACTs). **Methods:** A literature review in PubMed was conducted in March 2013 to identify all prospective clinical trials (uncontrolled trials, controlled trials and randomized controlled trials), including ACTs conducted in Sub-Saharan Africa, between 1960 and 2012. Individual patient data from these studies were shared with the Worldwide Ant malarial Resistance Network (WWARN) and pooled using an a priori statistical analytical plan. Factors affecting early parasitological response were investigated using logistic regression with study sites fitted as a random effect. The risk of bias in included studies was evaluated based on study design, methodology and missing data. **Results:** In total, 29,493 patients from 84 clinical trials were included in the

analysis, treated with artemether-lumefantrine (n = 13,664), artesunate-amodiaquine (n = 11,337) and dihydroartemisinin-piperaquine (n = 4,492). The overall parasite clearance rate was rapid. The parasite positivity rate (PPR) decreased from 59.7 % (95 % CI: 54.5–64.9) on day 1 to 6.7 % (95 % CI: 4.8–8.7) on day 2 and 0.9 % (95 % CI: 0.5–1.2) on day 3. The 95th percentile of observed day 3 PPR was 5.3 %. Independent risk factors predictive of day 3 positivity were: high baseline parasitaemia (adjusted odds ratio (AOR) = 1.16 (95 % CI: 1.08–1.25); per 2-fold increase in parasite density, P <0.001); fever (>37.5 °C) (AOR = 1.50 (95 % CI: 1.06–2.13), P = 0.022); severe anemia (AOR = 2.04 (95 % CI: 1.21–3.44), P = 0.008); areas of low/moderate transmission setting (AOR = 2.71 (95 % CI: 1.38–5.36), P = 0.004); and treatment with the loose formulation of artesunate-amodiaquine (AOR = 2.27 (95 % CI: 1.14–4.51), P = 0.020, compared to dihydroartemisinin-piperaquine). **Conclusions:** The three ACTs assessed in this analysis continue to achieve rapid early parasitological clearance across the sites assessed in Sub-Saharan Africa. A threshold of 5 % day 3 parasite positivity from a minimum sample size of 50 patients provides a more sensitive benchmark in Sub-Saharan Africa compared to the current recommended threshold of 10 % to trigger further investigation of artemisinin susceptibility.

10. **Aftab MS, Muhammad S. "Neural networks for tracking of unknown SISO discrete-time nonlinear dynamic systems:** ***ISA transactions. 2015. 59(363-374).***

This article presents a Lyapunov function based neural network tracking (LNT) strategy for single-input, single-output (SISO) discrete-time nonlinear dynamic systems. The proposed LNT architecture is composed of two feed forward neural networks operating as controller and estimator. A Lyapunov function based back propagation learning algorithm is used for online adjustment of the controller and estimator parameters. The controller and estimator error convergence and closed-loop system stability analysis is performed by Lyapunov stability theory. Moreover, two simulation examples and one real-time experiment are investigated as case studies. The achieved results successfully validate the controller performance.

11. **Aftab MS, Shafiq M, Aftab F. A Lyapunov function neuro-adaptive controller for LFC in two-area power system. In *Industrial Electronics Society, IECON 2015-41st Annual Conference of the IEEE*. 2015: 004645-004649.**

    Dynamic variations in real power directly affect the system frequency. Consequently, large frequency deviations in interconnected systems might cause costly power outages. In order to maintain continuous and stable power production, the load frequency control (LFC) becomes utmost important. This paper presents a neuro-adaptive controller that minimizes the effects of load variations on system frequency and tie-line exchanges. The proposed controller is trained with a new Lyapunov function back propagation learning algorithm that overcomes the fundamental problems associated with the conventional gradient-descent error backpropagation. Computer simulations, performed in Simulink environment, demonstrate superior load frequency control achieved with the proposed controller.

12. **Aftab MS, Shafiq M, Yousef H. Lyapunov stability criterion based neural inverse tracking for unknown dynamic plants. In *Industrial Technology (ICIT), International Conference on.* 2015: 321-325.**

    This paper presents a Lyapunov function based neural network tracking control strategy for single-input-single-output nonlinear dynamic systems. The proposed architecture is composed of two feed-forward neural networks operating as controller and estimator in a unified framework. The network parameters are tuned online with a Lyapunov function based backpropagation learning algorithm. The closed-loop error convergence and stability are analyzed with Lyapunov stability theory. Two simulation case studies are included that successfully validate the proposed controller performance.

13. **Aftab MS, Shafiq M. Adaptive PID controller based on Lyapunov function neural network for time delay temperature control. In *GCC Conference and Exhibition (GCCCE), 2015 IEEE 8th*, 2015: 1-6.**

    Temperature is an important control variable in industrial processes. In this paper, an adaptive PID control algorithm has been discussed to track the process temperature. The presented control algorithm employs Lyapunov function based artificial neural networks for online tuning of proportional, integral and derivative actions. This algorithm has been

successfully tested on the laboratory temperature control process trainer. For comparative analysis, the results have been contrasted with the conventional PID scheme. The experimental findings show that improved and stable tracking is achieved with the proposed adaptive PID controller.

14. **Ahluwalia A, Atwine D, De Maria C, Ibingira C, Kipkorir E, Kiros F, Madete J, Mazzei D, Molyneux E, Moonga K, Moshi M. Open Biomedical Engineering education in Africa. In2015 37th *Annual International Conference of the IEEE Engineering in Medicine and Biology Society* (EMBC) 2015; 3687-3690. IEEE.**

    Despite the virtual revolution, the mainstream academic community in most countries remains largely ignorant of the potential of web-based teaching resources and of the expansion of open source software, hardware and rapid prototyping. In the context of Biomedical Engineering (BME), where human safety and wellbeing is paramount, a high level of supervision and quality control is required before open source concepts can be embraced by universities and integrated into the curriculum. In the meantime, students, more than their teachers, have become attuned to continuous streams of digital information, and teaching methods need to adapt rapidly by giving them the skills to filter meaningful information and by supporting collaboration and co-construction of knowledge using open, cloud and crowd based technology. In this paper we present our experience in bringing these concepts to university education in Africa, as a way of enabling rapid development and self-sufficiency in health care. We describe the three summer schools held in sub-Saharan Africa where both students and teachers embraced the philosophy of open BME education with enthusiasm, and discuss the advantages and disadvantages of opening education in this way in the developing and developed world.

15. **Akoko LO, Joseph AB. Blood utilization in elective surgery in a tertiary hospital in Dar es Salaam, Tanzania. *Tanzania Journal of Health Research*. 2015; 17(4).**

    Background: There has been an observation of blood being unnecessarily requested even for surgeries that will not require transfusion. Furthermore, some patients have been denied surgery due to lack of blood causing surgical list disruptions and inconveniency to patients and their families. This study was carried out to determine the status of blood utilization practices at Muhimbili National Hospital (MNH) in Dar es Salaam, Tanzania.

Methods: A descriptive cross-sectional study was carried out for a period of eight months. Data on blood requisition and usage was collected on a structured questionnaire, and analyzed for Cross-match to Transfusion (C/T) ratio, Transfusion probability (%T), and Transfusion Index (TI). For those procedures that showed more than two indices to be significant, a Maximum Surgical Blood ordering Schedule MSBOS was proposed. **Results:** Blood was over ordered for 76% of the patients while over eight percent of the patients had haemoglobin levels over 10g/dl. Only amputation, laparotomy for malignancies, pneumonenctomy, and bowel resection for malignancy had at least two of the transfusion indices showing significant blood utilization for general surgery cases. For urological cases, only Cystectomy for bladder cancer and nephrectomy had at least two of the indices showing significant blood utilization. In the remaining cases, blood utilization was inefficient suggesting cross-matching of blood was unnecessary, which resulted in loss of nearly 73% of technician's working hours and USD 425 for the study period. **Conclusion:** There is existence of over ordering of blood in this hospital. Blood ordering practices needs to be reviewed to minimize over ordering of blood. All the three indices showed inefficient use of blood in most of the operations. But even so, utilization can still be improved in some of the operations which showed significant utilization.

16. **Alfred G, Abade A, Aboud S. Methicillin-resistantstaphylococcus aureus (MRSA) colonization among intensive care unit (ICU) patients and health care workers at Muhimbili National Hospital, Dar es salaam, Tanzania. *3rd MUHAS Scientific Conference, 2015.***

    Background: Methicillin-resistant Staphylococcus aureus (MRSA) has been recognized as important nosocomial pathogens worldwide. S aureus may induce clinically manifested diseases, or the host may remain completely asymptomatic. **Aims:** To determine the magnitude of MRSA colonization among intensive care unit (ICU) patients and health care workers at Muhimbili National Hospital (MNH) in Dar es Salaam, Tanzania. **Methods:** A cross-sectional hospital-based study was conducted from October 2012 to March 2013 in two ICUs at MNH. Admitted patients and health care workers were enrolled in the study. Interviewer administered questionnaires; patient history forms, observation charts and case report forms were used to collect data. Swabs (nostrils, axillary or wounds) were collected. MRSA were screened and confirmed using

cefoxitin, oxacillin discs and oxacillin screen agar. Antibiotic susceptibility was performed using Kirby-Bauer disk diffusion method. The risk factors for MRSA were determined using the logistic regression analysis and a p - value of <0.05 was considered as statistically significant. **Results:** Of the 169 patients and 47 health workers who were recruited, the mean age was 43.4 years ± SD 15.3 and 37.7 years ± (SD) 11.44 respectively. Among the patients male contributed108 (63.9%) while in health worker majority 39(83%) were females. The prevalence of MRSA colonization among patients and health care workers was 11.83% and 2.1% respectively. All (21) MRSA isolates were highly resistant to penicillin and erythromycin, and 17 (85.7%) were highly sensitive to vancomycin. Being male (AOR 6.74, 95% CI 1.31-34.76), history of sickness in past year (AOR 4.89, 95% CI 1.82- 13.12), being sick for more 3 times (AOR 8.91, 95% CI 2.32-34.20), being diabetic (AOR 4.87, 95% CI 1.55-15.36) and illicit drug use (AOR 10.18, 95%CI 1.36-76.52) were found to be independently associated with MRSA colonization.**Conclusions:** There is ahigh prevalence of MRSA colonization among patients admitted in the ICU. MRSA isolates were highly resistant to penicillin and erythromycin. History of illicit drug use is highly associated with MRSA colonization.

17. **Aliyan AN. Knowledge, Attitude And Use Of Intermittent Preventive Treatment For Malaria Among Pregnant Women Attending Antenatal Services At Mnazi Mmoja Hospital, Dar-Es-Salaam. Master of Master of Medicine (Obstetrics and Gynecology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.*****Background:**Intermittent preventive treatment for prevention of malaria in pregnancy (IPTp) using Sulfadoxine-Pyrimethamine (SP) through Focused Antenatal Care (FANC) and implementing Direct-Observed Therapy (DOT) is a very crucial component of malaria control strategy in Tanzania. Despite evidence of the effectiveness of this strategy in decreasing the adverse effects of malaria during pregnancy, various challenges have been observed in making the national targeted coverage of 80% too far from being achieved. This study is set out to assess the knowledge, attitudes and the use of IPTp among pregnant women attending antenatal clinic at Mnazi Mmoja Hospital, Dar-Es-Salaam. **Objective:** To determine the knowledge, attitude and use of Intermittent Preventive Treatment for malaria among pregnant women attending antenatal services at Mnazi Mmoja Hospital, Dar-es-Salaam. **Methodology:** A cross sectional study was

carried out.Interviewerguided questionnaires were administered to 450 pregnant women. The Reproductive and Child Health (RCH) cards of the pregnant women were also inspected for additional information. Convenient sampling method was employed. Data was analyzed by SPSS version 20.The variables included in this study are age,marital status,educational level, occupation, distance from the ANC, gravidity and gestational age(weeks) at first visit at the clinic. Results: The level of knowledge in Mnazi Mmoja Hospital is above average.A majority (91%) of the respondentshad good knowledge on IPTp.More than two thirds (69%), knew that SP was used for the prevention of malaria.More than half, (54.2%) had positive attitude towards IPTp.Majority of the patients (43.3%) received IPTp1 at the stipulated time of 20-24 weeks. Very few (5.8%) took IPTp1 between 14 to 19 weeks. There were 1.8% of the respondents who missed both IPTp1 and IPTp2 completely. There are few patients (9.1%) who took IPTp2 less than 4 weeks after the IPTp1, while majority of the patients (68.4 %) took IPTp2 after 4weeks. Less than a quarter (22.5%) missed only the second dose (IPTp2) and of these respondents 16.7% did not get IPTp2 because the drugs were out of stock, whereasa very few (5.8%) did not get IPTp2 because of late attendance to the clinic. **Conclusion**: This study has shown a good level of knowledge and positive attitude towards IPTp among pregnant mothers. The IPT program has successfully achieved high coverage for IPTp 1 and IPTp 2 (77.6%) with 100% adherence to the Directly Observed Therapy (DOT) scheme.

18. **Almadanim MC, Baleiras-Couto M, Pereira HS, Carneiro LC, Fevereiro P, Eiras-Dias JE, Veloso MM. Genetic diversity of the grapevine (Vitisvinifera L.) cultivars most utilized for wine production in Portugal. *VITIS-Journal of Grapevine Research*. 2015; 46(3): 116.**

Portugal is very rich in grapevine biodiversity but nowadays only a small number of cultivars (13 black and 3 white) with defined enological characteristics are being used. However, there are still 51 cultivars with significant expression in the country which have a great potential to be used in the establishment of new vineyards. Considering the importance of identifying and understanding the genetic relatedness of the main cultivars used for wine making in Portugal, those cultivars were genotyped with the 6 SSRs loci *VVMD5, VVMD7, VVMD27, VrZag62, VrZag79* and *VVS2* that are recommended by the

Office de la Vigne et du Vin for the elaboration of the worldwide database containing the alleles of all the known grapevine cultivars. A total of 49 alleles were detected with an average allele number of 8.17 per locus. The SSR profile of the 51 cultivars, at the 6 evaluated loci, indicates that all can be distinguished from each other. In addition, this study produces information on the relationship of these 51 grapevine cultivars with cultivars of other important Mediterranean wine producing regions.

19. **Alstadsæter A, Martin J, Roni M. "Do dividend taxes affect corporate investment?"** ***Journal of Public Economics*** **2015.**

    We test whether dividend taxes affect cor Porate investments. We exploit Sweden's 2006 dividend tax cut of 10 percentage points for closely held corporations and 5 percentage points for widely held corporations. Using rich administrative panel data and triple-difference estimators, we find that this dividend tax cut does not affect aggregate investment but that it affects the allocation of corporate investment. Cash-constrained firms increase investment after the dividend tax cut relative to cash-rich firms. Reallocation is stronger among closely held firms that experience a larger tax cut. This result is explained by higher external equity in cash-constrained firms and by higher dividends in cash-rich firms after the tax cut.

20. **Alstadsæter A, Martin J. "Dividend taxes and income shifting."** ***The Scandinavian Journal of Economics*** **2015.**

    This paper analyzes whether a dividend tax cut for owner–managers of closely held corporations encourages income shifting, income generation, or both. We use rich Swedish administrative micro data from 2000 to 2011 comprising detailed firm- and individual-level information. We find robust evidence of extensive income shifting across tax bases in response to the 2006 Swedish dividend tax cut. Owner–managers of closely held corporations reclassify earned income as dividend income but do not increase total income. The response is more pronounced for owner–managers with tax incentives and with easier access to income shifting through a high ownership share.

21. **Amiri R, Sayi G. Ngaimisi E, Sasi P. Current Efficacy of Sulphadoxine-Pyrimethamine (Sp) For Intermittent Preventive Treatment of Malaria During Pregnancy In Dar Es Salaam.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Intermittent preventive treatment of malaria in pregnancy with Sulphadoxine-Pyrimethamine (IPTp-SP) is associated with reduced incidence of clinical malaria, asymptomatic parasitaemia and anaemia, thus improving pregnancy outcome particularly by increasing birth weight. The strategy is widely used in malaria endemic countries. Currently, SP is probably the best available drug for IPTp and is reserved for the purpose in many countries. This reduces sustained drug pressure to P.falciparum, which may increase the level of SP resistance. However, there are anecdote reports that SP continues to be used in non-pregnant patients in Tanzania. Indeed, at least one meta-analysis has indicated that the benefit of SP for IPTp may be declining. **Objective:** To determine the current efficacy of SP for intermittent preventive treatment of malaria during pregnancy in Dar es Salaam. **Methodology:** Two doses of SP were given to 310 pregnant women according to national guidelines. All participants were followed up and evaluated at least once a week 28 onwards and at delivery. **Results:** A total of 310 pregnant women with a mean age (±SD) 26.4 (±0.3) years were enrolled. The proportion of low birth weight was not different from previous studies (6.5%versus 7.3 %; P = 0.721). The proportion of subjects with peripheral parasitemia at delivery was 2% (6/296). None had severe anemia or clinical malaria at delivery, and only six women (2%) had clinical malaria during follow up. **Conclusions:** Efficacy of SP for IPTp seems to be at a level similar to what it was about ten years ago. Our data are reassuring that the efficacy of IPTP-SP is still high and the Ministry of Health and Social Welfare may not need to change the policy for treatment of malaria in pregnancy at the moment. However, regular monitoring is essential for timely corrective measures when the need arises.

22. **Amon Y, Schadt R. Supporting Faculty with Best Practices in Online Education. *3rd MUHAS Scientific Conference*, 2015.**

Background: The Directorate of Continuing Education and Professional Development at Muhimbili University has established a Distance Learning Unit (DLU) collaborating with the School of Public Health and Social Sciences to establish postgraduate online programs. MUHAS introduced Moodle as a Learning Management System (LMS) in 2013. Moodle is an e-learning platform, providing resources and facilitating interaction online. **Aim:** In preparation for online postgraduate programs by 2015, MUHAS faculty members are being trained to use online tools, produce engaging materials and employ

teaching techniques using Moodle. This abstract introduces principles of best practice, indicates SPHSS faculty members' intended activities and materials developed to address their teaching goals using best practices and considers factors affecting development of materials and activities in Moodle. **Methods:** A session on translating best practices into online activities was conducted by facilitators from Boston University and Dartmouth along with DLU staff. A framework of best practice was introduced and pedagogical activities aligned with this framework were devised by faculty. In subsequent week-long, online trainings held by the DLU these best practices were reinforced and applied.**Results:** Thirty SPHSS faculty participated in the introductory session.Twenty nine faculties participated in online trainings in February/March2014. Examples of faculty work will be demonstrated and their feedback discussed.**Conclusion:** Many challenges face institutions which are implementing technology based initiatives. In addition to technical limitations of power and bandwidth, web-based technology brings challenges of training, increased demands on faculty time and a varying degree of student resistance to new means of teaching and learning. The training and support programs offered by the DLU and with facilitation from Boston University and Dartmouth reflect the Sloan-C Consortium Quality Framework in that institutional stakeholders show support for participation in online education, processes ensure faculty participation and support in online education and effective practices are identified and shared.

23. **An SJ, George AS, LeFevre A, (et al.) "Program synergies and social relations: implications of integrating HIV testing and counseling into maternal health care on care seeking."** ***BMC public health.*** **2015; 15(1): 1.**

    Background: Women and children in sub-Saharan Africa bear a disproportionate burden of HIV/AIDS. Integration of HIV with maternal and child services aims to reduce the impact of HIV/AIDS. To assess the potential gains andrisks of such integration, this paper considers pregnant women's and providers' perceptions about the effects ofintegrated HIV testing and counseling on care seeking by pregnant women during antenatal care in Tanzania. **Methods:** From a larger evaluation of an integrated maternal and newborn health care program in Morogoro, Tanzania, this analysis included a subset of information from 203 observations of antenatal care and interviewswith 57 providers and 190 pregnant women from 18 public health centers in rural and peri-urban settings.

Qualitativedata were analyzed manually and with Atlas.ti using a framework approach, and quantitative data of respondents'demographic information were analyzed with Stata 12.0. **Results:** Perceptions of integrating HIV testing with routine antenatal care from women and health providers were generally positive. Respondents felt that integration increased coverage of HIV testing, particularly among difficult-toreachpopulations, and improved convenience, efficiency, and confidentiality for women while reducing stigma.Pregnant women believed that early detection of HIV protected their own health and that of their children. Despitethese positive views, challenges remained. Providers and women perceived opt out HIV testing and counseling duringantenatal services to be compulsory. A sense of powerlessness and anxiety pervaded some women's responses, reflecting the unequal relations, lack of supportive communications and breaches in confidentiality betweenwomen and providers. Lastly, stigma surrounding HIV was reported to lead some women to discontinue servicesor seek care through other access points in the health system. **Conclusion:** While providers and pregnant women view program synergies from integrating HIV services into Antenatal care positively, lack of supportive provider-patient relationships, lack of trust resulting from harsh treatment orbreaches in confidentiality, and stigma still inhibit women's care seeking. As countries continue rollout of Option B+, social relations between patients and providers must be understood and addressed to ensure that integrateddelivery of HIV counseling and services encourage women's care seeking in order to improve maternal andchild health.

24. **An SJ, George AS, LeFevre A, Mpembeni R, Mosha I, Mohan D, Yang A, Chebet J, Lipingu C, Killewo J, Winch P. Program synergies and social relations: implications of integrating HIV testing and counseling into maternal health care on care seeking.** ***BMC Public Health.*** **2015; 15(1):1.**

    Background: Women and children in sub-Saharan Africa bear a disproportionate burden of HIV/AIDS. Integration of HIV with maternal and child services aims to reduce the impact of HIV/AIDS. To assess the potential gains and risks of such integration, this paper considers pregnant women's and providers' perceptions about the effects of integrated HIV testing and counseling on care seeking by pregnant women during antenatal care in Tanzania. **Methods:** From a larger evaluation of an integrated maternal and newborn health care program in Morogoro, Tanzania, this analysis included a subset

of information from 203 observations of antenatal care and interviews with 57 providers and 190 pregnant women from 18 public health centers in rural and peri-urban settings. Qualitative data were analyzed manually and with Atlas.ti using a framework approach, and quantitative data of respondents' demographic information were analyzed with Stata 12.0. **Results:** Perceptions of integrating HIV testing with routine antenatal care from women and health providers were generally positive. Respondents felt that integration increased coverage of HIV testing, particularly among difficult-to-reach populations, and improved convenience, efficiency, and confidentiality for women while reducing stigma. Pregnant women believed that early detection of HIV protected their own health and that of their children. Despite these positive views, challenges remained. Providers and women perceived opt out HIV testing and counselling during antenatal services to be compulsory. A sense of powerlessness and anxiety pervaded some women's responses, reflecting the unequal relations, lack of supportive communications and breaches in confidentiality between women and providers. Lastly, stigma surrounding HIV was reported to lead some women to discontinue services or seek care through other access points in the health system. **Conclusion:** While providers and pregnant women view program synergies from integrating HIV services into antenatal care positively, lack of supportive provider-patient relationships, lack of trust resulting from harsh treatment or breaches in confidentiality, and stigma still inhibit women's care seeking. As countries continue rollout of Option B+, social relations between patients and providers must be understood and addressed to ensure that integrated delivery of HIV counselling and services encourages women's care seeking in order to improve maternal and child health.

25. **An SJ, George AS, LeFevre AE, Mpembeni R, Mosha I, Mohan D, Yang A, Chebet J, Lipingu C, Baqui AH, Killewo J. Supply-side dimensions and dynamics of integrating HIV testing and counselling into routine antenatal care: a facility assessment from Morogoro Region, Tanzania. *BMC health services research*. 2015; 15(1):1.**

Background: Integration of HIV into RMNCH (reproductive, maternal, newborn and child health) services is an important process addressing the disproportionate burden of HIV among mothers and children in sub-Saharan Africa. We assess the structural inputs and processes of care that support HIV testing and counselling in routine antenatal care to

understand supply-side dynamics critical to scaling up further integration of HIV into RMNCH services prior to recent changes in HIV policy in Tanzania. **Methods:** This study, as a part of a maternal and newborn health program evaluation in Morogoro Region, Tanzania, drew from an assessment of health centers with 18 facility checklists, 65 quantitative and 57 qualitative provider interviews, and 203 antenatal care observations. Descriptive analyses were performed with quantitative data using Stata 12.0, and qualitative data were analyzed thematically with data managed by Atlas.ti. **Results:** Limitations in structural inputs, such as infrastructure, supplies, and staffing, constrain the potential for integration of HIV testing and counselling into routine antenatal care services. While assessment of infrastructure, including waiting areas, appeared adequate, long queues and small rooms made private and confidential HIV testing and counselling difficult for individual women. Unreliable stocks of HIV test kits, essential medicines, and infection prevention equipment also had implications for provider-patient relationships, with reported decreases in women's care seeking at health centers. In addition, low staffing levels were reported to increase workloads and lower motivation for health workers. Despite adequate knowledge of counselling messages, antenatal counselling sessions were brief with incomplete messages conveyed to pregnant women. In addition, coping mechanisms, such as scheduling of clinical activities on different days, limited service availability. **Conclusion:** Antenatal care is a strategic entry point for the delivery of critical tests and counselling messages and the framing of patient-provider relations, which together underpin care seeking for the remaining continuum of care. Supply-side deficiencies in structural inputs and processes of delivering HIV testing and counselling during antenatal care indicate critical shortcomings in the quality of care provided. These must be addressed if integrating HIV testing and counselling into antenatal care is to result in improved maternal and newborn health outcomes.

26. **Anstey NM, Price RN, Davis TME, Karunajeewa HA, Mueller I, D'Alessandro U, Massougbodji A, Nikiema F, Ouédraogo JB, Tinto H, Zongo I, Same-Ekobo A, Koné M, Menan H, Yavo W, Touré AO, Kofoed PE, Alemayehu BH, Jima D, Baudin E, Espié E, Nabasumba C, Nambozi M. et al. "The effect of dose on the antimalarial efficacy of artemether–lumefantrine: a systematic review and pooled**

analysis of individual patient data". *The Lancet Infectious Diseases*. 2015; 15(6):692-702.

Background: Artemether–lumefantrine is the most widely used artemisinin-based combination therapy for malaria, although treatment failures occur in some regions. We investigated the effect of dosing strategy on efficacy in a pooled analysis from trials done in a wide range of malaria-endemic settings. **Methods:** We searched PubMed for clinical trials that enrolled and treated patients with artemether–lumefantrine and were published from 1960 to December, 2012. We merged individual patient data from these trials by use of standardised methods. The primary endpoint was the PCR-adjusted risk of Plasmodium falciparum recrudescence by day 28. Secondary endpoints consisted of the PCR-adjusted risk of P falciparum recurrence by day 42, PCR-unadjusted risk of P falciparum recurrence by day 42, early parasite clearance, and gametocyte carriage. Risk factors for PCR-adjusted recrudescence were identified using Cox's regression model with frailty shared across the study sites. **Findings:** We included 61 studies done between January, 1998, and December, 2012, and included 14 327 patients in our analyses. The PCR-adjusted therapeutic efficacy was 97·6% (95% CI 97·4–97·9) at day 28 and 96·0% (95·6–96·5) at day 42. After controlling for age and parasitaemia, patients prescribed a higher dose of artemether had a lower risk of having parasitaemia on day 1 (adjusted odds ratio [OR] 0·92, 95% CI 0·86–0·99 for every 1 mg/kg increase in daily artemether dose; p=0·024), but not on day 2 (p=0·69) or day 3 (0·087). In Asia, children weighing 10–15 kg who received a total lumefantrine dose less than 60 mg/kg had the lowest PCR-adjusted efficacy (91·7%, 95% CI 86·5–96·9). In Africa, the risk of treatment failure was greatest in malnourished children aged 1–3 years (PCR-adjusted efficacy 94·3%, 95% CI 92·3–96·3). A higher artemether dose was associated with a lower gametocyte presence within 14 days of treatment (adjusted OR 0·92, 95% CI 0·85–0·99; p=0·037 for every 1 mg/kg increase in total artemether dose). **Interpretation:** The recommended dose of artemether–lumefantrine provides reliable efficacy in most patients with uncomplicated malaria. However, therapeutic efficacy was lowest in young children from Asia and young underweight children from Africa; a higher dose regimen should be assessed in these groups.

27. **Ariga E. Attributes of cancer messages' delivery that cause delay in seeking treatment among cervical cancer patients at ocean road cancer institute, Dar es salaam, Tanzania. Master of Public Health,** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es salaam.***

Background: Cervical cancer is the second commonest malignant in females globally and the leading malignant among women in Tanzania. It has a devastating impact on women's health in Sub Saharan Africa. Most women delay seeking treatment of cervical cancer leading to high morbidity and mortality. Many studies have put emphasis on socio-economic factors, cultural factors, accessibility, knowledge, attitude and belief, however, there is need to investigate information processing of messages and decision making among cervical cancer patients that will contribute to health seeking behavior. The aim of the study is to explore the attributes of cervical cancer messages delivery that causes delay of seeking cancer treatment among cervical cancer patients. **Methods:** A cross sectional explorative study was conducted between Januarys to April 2015. Quantitative approach was used on selected women with histological proven cervical cancer getting treatment at Ocean Road Cancer Institute (ORCI) both at inpatient and outpatient clinics. A total of 197 women were selected. Data was collected, entered and analysed using SPSS according to research objectives to produce summary statistics. **Results:** Study findings revealed that there is high level of awareness of symptoms and sources of information about cervical cancer. However, there was insufficient level on understanding messages received about cervical cancer. Factors that significantly induce decision to seek medical treatment were; role of individual on treatment (OR=1.7, 95%CI 1.2-2.7), positive perception of the disease (OR=1.3, 95%CI 0.4-4.9), level of understanding of the messages received and family involvement in decision to seek medical treatment. Barriers resulting in delay to seek medical treatment included; economic constraint, long distances, cultural belief such as such as spiritual belief that cervical cancer will heal on itself, stigma and discrimination and seeking help from traditional healer. **Conclusion:** These findings imply that there is urgent need for wide community based education and awareness programs as well as a variety of communication channels to disseminate information about cervical cancer. There is also need for male involvement and more sensitization and counseling of cancer of the cervix.

28. **Asif MS, Shafiq M, Choi JG. "Flexible and efficient aggregation framework for antifragile wireless me (2015sh networks."** ***Journal of Reliable Intelligent*** **Environments. 2015. (1), 2-4 159-171.**

    Wireless mesh networks (WMNs) have found an interesting alternative application in public safety and disaster recovery as they are enabled with key features such as fault tolerance, broadband support, and interoperability. However, their sparsely distributed wireless nodes need to frequently share the control packets among each other for successful data transfer. These packets give rise to a considerable amount of control overhead, especially for multimedia traffic, which is not bearable in jeopardy situations of network disaster such as 9/11 and Hurricane Katrina. Hence, to avoid the huge cost of control overhead, aggregation is supposed to be one of the handy solutions for building a new object from one or more existing objects of network traffic. Generally, aggregation has three types to be executed on ‘packets’, ‘frames’ and the ‘links’ of a network. The network decision that when and which type of aggregation is suitable in a given scenario is a complex balancing act. Because, it is bounded by various live statistics of the communication link (e.g., buffer size, link quality, bandwidth, maximum transmission unit, and delay etc.) and thus, can considerably affect the network efficiency. If such statistics do not support aggregation or its certain type, network performance may cause worse affects. This paper proposes a decision-oriented dynamic solution, namely AADM, which is an adaptive aggregation-based decision model. Based on the link quality and its live statistics, AADM dynamically takes judicious decisions about aggregation and its specific type to achieve the desired outcome. Despite network scalability, quality of service, power optimization, and network efficiency, it also reduces control traffic in WMNs. OMNET++ simulations are used to verify AADM. Simulation results have shown that AADM outperforms existing static approaches in terms of packet loss, throughput and delay.

29. **Asmawi A, Chew K , Hanafi M, Shafiq M. Leveraging on High Performance Work Practices (HPWP) in Shaping Innovative R&D Culture.** ***Advanced Science Letters*****. 2015:** ***21*****(5): 1592-1595.**

Research and development (R&D) is imperative to the economic development of a country. While R&D organizations can have sophisticated technology, it is the R&D professionals who will turn new ideas into innovative products and services. For R&D to become a catalyst of growth, managing R&D professionals is important. This conceptual paper highlights the critical need to move from transactional HRM practices to HPWP that are more compatible with innovative goals of R&D organizations. HPWP can become a powerful managerial tool to shape an R&D culture. This study gathered a variety of HRM practices that have the potential to enhance innovative R&D culture. This paper then demonstrates how different combinations of HPWP bundles can lead to both positive or negative effect on R&D culture and eventually the R&D performance.

30. **Athuman I. Repellency and chemical composition of essential oils of plant species traditionally used as mosquito repellents in Longido District. Master of Science (Traditional Medicines)** ***Development) Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es Salaam*****.**

    Background: Efforts to limit the effect of mosquito borne diseases in endemic areas face the twin challenges of controlling mosquito populations and overcoming resistance to both vectors and parasites. There has been exploration of various methods over the centuries to combat threats from mosquito-borne diseases, one of these methods include exploring of the use of repellent agents including repellent plants which minimize human vector contacts. **Objective:** The aim of this research was to investigate repellency properties and identify chemical compounds of essential oils from plants that are traditionally used in Longido district to repel mosquitoes. **Materials and methods:** Ethno botanical survey was done among the Maasai community of Longido district to identify plants that can be used in the control of malaria transmitting mosquito vectors. Essential oils extracted from identified plants were analyzed for their chemical composition using GC-FID and Mosquito repellency bioassay was done by thermal expulsion method, topical application using human bait and and essential oil emanators. **Results:** Dobera loranthifolia (Warb.) Harms, Lippia javanica (Burm. F.) Spreng, Tagetes minuta L., Ocimum bacilicum L., Hyptis suaveleons, Olea europeana L. ssp. africana (Mill.) P. S. Green and Osyris lanceolata were reported to have mosquito repellency property. GC-FID analysis of T. minuta essential oils confirmed α-pinene

(0.06%), Linalool (0.45%), Sabinene (0.49%), Limonene (14.31%), Camphene (1.95%), DL-menthol (0.06%), verbenone (5.63%), Anisaldehye (0.55%), Carvacrol (0.07%), eugenol (0.03%) and Phytol (0.76%). While L. javanica essential oils confirmed Linalool (0.06%), Sabinene (0.43%), Limonene (5.38%), Camphene (25.04%), DL-menthol (1.79%), verbenone (1.41%), Anisaldehye (0.09%), Carvacrol (0.04%), eugenol (0.01%) and Phytol (0.02%). Concentration of 40% of formulated essential oil-Cow butter of T. minuta has 80.9% protection for 3hr 15 min while L. javanica has 74% protections for 2hr 50 min respectively by topical application. Thermal expulsion showed protection of 40% and 52.6% for T. minuta and L. javanica respectively. Formulated essential oils showed higher repellency efficacy than chopped plants thermal expulsion. Essential oil of the two plants when tested alone shows lower repellency than formulated essential oil, 100% of T. minuta shows protection time of 1 hr 52 min while that of L. javanica shows protection time of 1 hr 15 min. Likewise formulated Cow butter-essential oil of L. javanica has 74% protection up to 2 hrs 50 min against the unformulated oil that gave 47% protection by 1 hrs 15 min. However still, topical application was better that thermal expulsion which indicated protection up to 40% and 52.6% overnight for T. minuta and L. javanica respectively. **Conclusion and recommendation:** Formulated essential oils showed higher repellency efficacy than chopped plants thermal expulsion. These plant based repellents and the carrier used in formulating the essential oils does not require external input in order to exploit them as they are available in the Maasai. However, toxicity test of the plants essential oil need to be confirm for their safety before practical administration for human use.

31. **August F, (et al.) "Birth preparedness and complication readiness–a qualitative study among community members in rural Tanzania."** ***Global health action. 2015;*** **8.**

    Background: Birth preparedness and complication readiness (BP/CR) strategies are aimed at reducing delays in seeking, reaching, and receiving care. Counseling on birth preparedness is provided during antenatal care visits. However, it is not clear why birth preparedness messages do not translate to utilization of facility delivery. This study explores the perceptions, experiences, and challenges the community faces on BP/CR. **Design:** A qualitative study design using Focused Group Discussions was conducted. Twelve focus group discussions were held with four separate groups: young men and

women and older men and women in a rural community in Tanzania. Qualitative content analysis was used to analyse the data. **Results:** The community members expressed a perceived need to prepare for childbirth. They were aware of the importance to attend the antenatal clinics, relied on family support for practical and financial preparations such as saving money for costs related to delivery, moving closer to the nearest hospital, and also to use traditional herbs, in favour of a positive outcome. Community recognized that pregnancy and childbirth complications are preferably treated at hospital. Facility delivery was preferred; however, certain factors including stigma on unmarried women and transportation were identified as hindering birth preparedness and hence utilization of skilled care. Challenges were related to the consequences of poverty, though the maternal health care should be free, they perceived difficulties due to informal user fees. **Conclusions:** This study revealed community perceptions that were in favour of using skilled care in BP/CR. However, issues related to inability to prepare in advance hinder the realization of the intention to use skilled care. It is important to innovate how the community reinforces BP/CR, such as using insurance schemes, using community health funds, and providing information on other birth preparedness messages via community health workers.

32. **August F, Pembe AB, Mpembeni R, Axemo P, Darj E. Men's knowledge of obstetric danger signs, birth preparedness and emergency readiness in Rural Tanzania. *3rd MUHAS Scientific Conference, 2015.***

Background: Male involvement in maternal health has been related to elevated use of skilled attendance at delivery.Thus awareness of obstetric danger signs, birth and emergency preparedness measures among men is likely to influence their spouses use of antenatal care and delivery services. **Aim:** To assess the level of knowledge of obstetric complications and birth preparedness among men in a rural Tanzania. **Methods:** A cross sectional survey was done in rural Tanzania where 726 men were randomly selected for the study. A structured questionnaire was used to obtain information on socio-demographic characteristics, knowledge of obstetric danger signs, birth and emergency preparedness. **Results:** Men new at least one danger sign during; pregnancy (34%), delivery (28%) and puerperium (25%). Regarding birth preparedness and complication readiness; 10.4% mentioned transport, 46.6% money saving, 0.2% blood donor, 0.8% a

skilled birth attendant and 1.8% health facility identification. Knowledge on birth preparedness was associated with having a wife who had previous obstetric complication (OR=2.0, 95%CI; 1.2 – 3.2) and previous delivery in a health facility (OR=2, 95% CI; 1.7 – 4.4). Men were less likely to be well prepared if they resided in a rural area (OR=0.6, 95% CI; 0.4-0.8). **Conclusion:** ANC services should be designed in a way that favors male participation during antenatal care as they are important stakeholders in maternal health.

33. **August F, Pembe AB, Kayombo E, Mbekenga C, Axemo P, Darj E. Birth preparedness and complication readiness–a qualitative study among community members in rural Tanzania. *Global health action*. 2015; 8.**

Background: Birth preparedness and complication readiness (BP/CR) strategies are aimed at reducing delays in seeking, reaching, and receiving care. Counselling on birth preparedness is provided during antenatal care visits. However, it is not clear why birth preparedness messages do not translate to utilisation of facility delivery. This study explores the perceptions, experiences, and challenges the community faces on BP/CR. **Design:** A qualitative study design using Focused Group Discussions was conducted. Twelve focus group discussions were held with four separate groups: young men and women and older men and women in a rural community in Tanzania. Qualitative content analysis was used to analyse the data. **Results:** The community members expressed a perceived need to prepare for childbirth. They were aware of the importance to attend the antenatal clinics, relied on family support for practical and financial preparations such as saving money for costs related to delivery, moving closer to the nearest hospital, and also to use traditional herbs, in favour of a positive outcome. Community recognised that pregnancy and childbirth complications are preferably treated at hospital. Facility delivery was preferred; however, certain factors including stigma on unmarried women and transportation were identified as hindering birth preparedness and hence utilisation of skilled care. Challenges were related to the consequences of poverty, though the maternal health care should be free, they perceived difficulties due to informal user fees. **Conclusions:** This study revealed community perceptions that were in favour of using skilled care in BP/CR. However, issues related to inability to prepare in advance hinder the realisation of the intention to use skilled care. It is important to innovate how the

community reinforces BP/CR, such as using insurance schemes, using community health funds, and providing information on other birth preparedness messages via community health workers.

34. **August F, Pembe AB, Mpembeni R, (et al.) "Men's knowledge of obstetric danger signs, birth preparedness and complication readiness in rural Tanzania."*PloS one* .2015; 10. (5): e0125978.**

Background: Men's involvement in reproductive health is recommended. Their involvement in antenatal care service is identified as important in maternal health. Awareness of obstetric danger signs facilitates men in making a joint decision with their partners regarding accessing antenatal and delivery care. This study aims to assess the level of knowledge of obstetric complications among men in a rural community in Tanzania, and to determine their involvement in birth preparedness and complication readiness. **Methods:** A cross-sectional survey was conducted where 756 recent fathers were invited through a two-stage cluster sampling procedure. A structured questionnaire was used to collect socio-demographic characteristics, knowledge of danger signs and steps taken on birth preparedness and complication readiness. Data were analyzed using bivariate and multivariable logistic regression to determine factors associated with being prepared, with statistically significant level at $p<0.05$. **Results:** Among the invited men, 95.9% agreed to participate in the community survey. Fifty-three percent could mention at least one danger sign during pregnancy, 43.9% during delivery and 34.6% during the postpartum period. Regarding birth preparedness and complication readiness, 54.3% had bought birth kit, 47.2% saved money, 10.2% identified transport, 0.8% identified skilled attendant. In general, only 12% of men were prepared. Birth preparedness was associated with knowledge of danger signs during pregnancy (AOR = 1.4, 95% CI: 1.8-2.6). It was less likely for men living in the rural area to be prepared (AOR=0.6, 95% CI; 0.5-0.8). **Conclusion:** There was a low level of knowledge of obstetric danger signs among men in a rural district in Tanzania. A very small proportion of men had prepared for childbirth and complication readiness. There was no effect of knowledge of danger signs during childbirth and postpartum period on being prepared. Innovative strategies that increase awareness of danger signs as well as birth preparedness and complication readiness

among men are required. Strengthening counseling during antenatal care services that involve men together with partners is recommended.

35. **Auld AF, Shiraishi RW, Mbofana F, Couto A, Fetogang EB, El-Halabi S, Lebelonyane R, Pilatwe PT, Hamunime N, Okello V, Mutasa-Apollo T. Lower levels of antiretroviral therapy enrollment among men with HIV compared with women-12 countries, 2002-2013. 2015**.

    Equitable access to antiretroviral therapy (ART) for men and women with human immunodeficiency virus (HIV) infection is a principle endorsed by most countries and funding bodies, including the U.S. President's Emergency Plan for AIDS (acquired immunodeficiency syndrome) Relief (PEPFAR) (1). To evaluate gender equity in ART access among adults (defined for this report as persons aged >/=15 years), 765,087 adult ART patient medical records from 12 countries in five geographic regions* were analyzed to estimate the ratio of women to men among new ART enrollees for each calendar year during 2002-2013. This annual ratio was compared with estimates from the Joint United Nations Programme on HIV/AIDS (UNAIDS) dagger of the ratio of HIV-infected adult women to men in the general population. In all 10 African countries and Haiti, the most recent estimates of the ratio of adult women to men among new ART enrollees significantly exceeded the UNAIDS estimates for the female-to-male ratio among HIV-infected adults by 23%-83%. In six African countries and Haiti, the ratio of women to men among new adult ART enrollees increased more sharply over time than the estimated UNAIDS female-to-male ratio among adults with HIV in the general population. Increased ART coverage among men is needed to decrease their morbidity and mortality and to reduce HIV incidence among their sexual partners. Reaching more men with HIV testing and linkage-to-care services and adoption of test-and-treat ART eligibility guidelines (i.e., regular testing of adults, and offering treatment to all infected persons with ART, regardless of CD4 cell test results) could reduce gender inequity in ART coverage.

36. **Aurzada F, Thomas S. "Persistence probabilities and exponents."Lévy Matters V. Springer International Publishing. 2015; 183-224.**

This article deals with the asymptotic behavior as \(t \right arrow +\nifty \) of the survival function \(\mathbb{P}[T > t]\), where *T* is the first passage time above a non negative level of a random process starting from zero. In many cases of physical significance, the behavior is of the type \(\mathbb{P}[T > t] = t^{-\theta +o(1)}\) for a known or unknown positive parameter \(\theta\) which is called the persistence exponent. The problem is well understood for random walks or Lévy processes but becomes more difficult for integrals of such processes, which are more related to physics. We survey recent results and open problems in this field.

37. **Bagarama F, Maganga M. Physical and Microbial Contaminants of Cattle Slaughtering Sites: Implications to Human health in Rural Tabora, Tanzania.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Animal products, including carcasses and fresh meat are easily contaminated with microorganisms and support their growth particularly among resource poor communities that ill-equipped with both storage and processing facilities. **Objective:** To assess potential contaminants of meat under slaughtering grounds in the resource poor communities in rural areas. **Methods:** Five local slaughtering sites around Tumbi Agricultural Research Institute were visitedduring the dry season in June through October 2013. Identification of tree species under which cattle were slaughtered was done. A five meter by five meter area was demarcated to include the area of accumulation of blood and cattle dung and different physical contaminants of meat. Potential meat contaminants found in the demarcated area were recorded. A composite soil sample was collected under disposed cattle dung found in the demarcated slaughter site. Bacterial isolates were cultured and isolated from samples using routine microbiological culture techniques. **Results:** The majority of the cattle are slaughtered under poor hygienic conditions mostly under trees of the species Syzygium *guineense*; *Brachystegia ssp*; and *Mangiferaindica*. Nine physical contaminants of meat were identified in slaughtering sites including; cattle dung, leaf litter, dry tree twigs, cow blood, Confidor 80WP (insecticide) packets, ants and human excreta. The mean viable bacterial count was 3.38cfu/cm^2. The main bacterial species isolated were, S. aureues (15%), Pseudomonas sps (12%), Bacillus sps (9%), Klebsiella sps (10.2%), Ecoli (8.9%) and Salmonella sps (3%). **Conclusion:** Cattle are slaughtered under poor hygienic conditions, which may

lead to the contamination of meat products with known bacterial food pathogens that can lead to outbreaks of food poising. There is thus the need to urgently educate rural communities about hygienic slaughtering practices.

38. **Bakari M, Idris UT, Mohammed B. "Awareness and utilization of Papanicoloau smear among health care workers in Maiduguri, Nigeria."** ***Nigerian Journal of Basic and Clinical Sciences.*** **2015;** ***12(1): 34.***

Background: Cervical cancer is the leading cause of cancer related deaths among women in developing countries. Lack of awareness and comprehensive cervical cancer screening programmers offered in most developing countries are partly responsible for the high burden of disease. In developed countries, routine use of Papanicoloau smear, in part, has led to a decline in cervical cancer incidence and mortality. **Objective:** To determine the level of awareness, utilization and factors associated with awareness of Pap smear test as a tool for cervical cancer screening among health care workers (HCW) in Maiduguri north-eastern part of Nigeria. **Subjects and Methods:** This was a cross-sectional questionnaire based study conducted among 150 health care workers in Maiduguri, between January and March 2010. Simple descriptive statistics was employed in the analysis of data. **Results:** A total of 150 participants were recruited for the study. The majority (141) of respondents was aware of Papanicolaou smear and 23.3% of the female respondents had done the test previously. Majority (90.8%) of the men was willing to pay for their spouses to do the screening; some of them (20.0%) were indifferent if their spouses perform the cervical screening without their consent. The major reason given for carrying out the test was for prevention of the disease. The major source of information was the hospital (84.7%). Majority of the women were willing to do the test if offered the opportunity either free (70.6%) or with payment (29.4%). A number of socio-demographic variables played crucial roles in awareness and utilization of Pap smear. These included higher level of educational status (P = 0.000) of the respondents, increased maternal age (P = 0.001) and high parity (P = 0.003). **Conclusion:** There is poor utilization of Pap smear among HCW despite high level of awareness and availability of screening services. A number of socio-demographic variables play crucial roles in awareness of Pap smear. The reasons for the low utilization among health care

workers, who are the custodians of health care need to be investigated to improve their utilization of Pap smear.

39. **Bakari M, Ify DN. "Microenterprise Owners: Challenges with Initialization, Growth, and Success.*" 2015*.**

    The vitality of any community rests on its entrepreneurs; therefore, understanding the barriers that impede microenterprise initialization and growth is essential. This phenomenological study explored the coping strategies of African American business owners related to business growth and operation in a southeast Virginian city. Two theories framed this study: the resource-based theory and the disadvantage theory of entrepreneurship. Twenty microenterprise owners who had active businesses participated in this study. These microenterprise owners responded to semi structured questions and shared their experiences in face-to-face interviews. Data codification and thematic reduction occurred within qualitative data analysis software. Emergent themes included (a) the effects of barriers on micro entrepreneurs, (b) the influences of regulatory agencies on microenterprises, (c) entrepreneurial resources required for success, and (d) agency adaptation to entrepreneurial needs. Two invariant themes emerged from the data; these themes were the importance of location and the availability of a quality workforce.

40. **Bakari M, Takai IU. "Rising trend in maternal mortality at the university of Maiduguri Teaching hospital."** ***Tropical Journal of Obstetrics and Gynecology*****. 2015;** ***32(1): 124-131.***

    Introduction: Various interventions have been introduced to reduce the very high maternal mortality ratio in our environment but to date the success is only marginal at best. **Objective**: To determine the trend in maternal mortality in University of Maiduguri Teaching Hospital (UMTH). **Methods**: Analysis of records of all women who died in pregnancy, labour and puerperium [up to 42 days after a pregnancy event] in UMTH between January, 2006 and December, 2010 was conducted. **Results**: The maternal mortality ratio (MMR) was 1074/100,000 live births. The main causes of maternal mortality were eclampsia in 34.6% of cases, haemorrhage (9.1%), HIV (17.8%) and puerperal infections (7.5%). There was rising trend in maternal mortality ratio over the

study period. Factors contributing to maternal death included advanced maternal age, grand-multiparty, illiteracy, non-utilization of antenatal care services and late presentation to hospital. **Conclusion**: The maternal mortality ratio in UMTH is in in the upward trend and many of the causes of maternal death are avoidable. HIV appears to be an emerging major contributor to maternal deaths. There is therefore the need to strengthen the existing maternal health care services in Maiduguri, Borno state.

41. **Bakengesa KV. Determinants of health facility delivery among women who delivered in Kisarawe District, Coast Region, Tanzania. Master of Public Health, *Dissertation 2015. Muhimbili University of Health and Allied sciences*.**

    Background: Delivery in health facilities is still challenging in Tanzania which partly is contributing to high observed Maternal Mortality ratio. So knowledge on the determinants of health facility delivery is crucial in reversing this situation which is the result of delivery being conducted by unskilled birth attendant away from health facilities. **Objective:** This study aimed to determine the determinants of health facility delivery among women who delivered in Kisarawe district, coast region in Tanzania. **Material and Methods:** A descriptive cross sectional study was conducted in Kisarawe district in May 2014. Household survey of participants obtained through multistage cluster sampling in which structured questionnaire was used to collect relevant information. **Results:** A total of 676 women with children aged ≤2 years consented for the study. The age of participants ranged from 15 to 45 years with the mean of 25.9 (SD= 6.5) years. Mother's levels of Education, Number of ANC attendance, Household's family income and Child's father Occupation were significant determinants of health facility delivery. Women with secondary/college education were five times likely to deliver in the health facilities as compared with those with no formal education (AOR=4.9, 95%CI 1.2-21.2); those with primary education were two times likely to deliver in the health facilities as compared with those with no formal education (AOR=2.3, 95%CI 1.2-4.4). Women with employed partners and those with self-employed partners were seven times likely to deliver in the health facilities as compared with those with peasant partners (AOR=7.2, 95%CI 1.7-30.3) and (AOR=7.2, 95%CI 3.0-17.0) respectively. Women who attended four or more ANC visits were four times likely to deliver in the health facilities as compared with those who attend less than four

visits (AOR=4.2, 95%CI 2.6-6.8). Women who perceived that they were coming from family with high/medium income were almost two times likely to deliver in the health facilities as compared with those coming from low income families (AOR=1.6, 95%CI 1.0-2.5). **Conclusion:** Women's education level, perceived household high/moderate income level, child father's occupation and adherence to the WHO recommendation of four antenatal care visits were important determinants of health facility delivery in Kisarawe district. **Recommendation:** Sensitization on importance of completion of recommended ANC attendance through improved education in the community and practicing birth prepared plan especially to low economic status households. This will increase the likelihood of delivering in the health facility and therefore increased chance of being attended by skilled birth attendants.

42. **Baker T, Blixt J, Lugazia E, Schell CO, Mulungu M, Milton A, Castegren M, Eriksen J, Konrad D. Single Deranged Physiologic Parameters Are Associated With Mortality in a Low-Income Country. *Critical care medicine*. 2015; 43(10):2171-9.**

Objective: To investigate whether deranged physiologic parameters at admission to an ICU in Tanzania are associated with in-hospital mortality and compare single deranged physiologic parameters to a more complex scoring system. **Design:** Prospective, observational cohort study of patient notes and admission records. Data were collected on vital signs at admission to the ICU, patient characteristics, and outcomes. Cutoffs for deranged physiologic parameters were defined a priori and their association with in-hospital mortality was analyzed using multivariable logistic regression. **Setting:** ICU at Muhimbili National Hospital, Dar es Salaam, Tanzania. **Patients:** All adults admitted to the ICU in a 15-month period. **Measurements and Main Results**: Two hundred sixty-nine patients were included: 54% female, median age 35 years. In-hospital mortality was 50%. At admission, 69% of patients had one or more deranged physiologic parameter. Sixty-four percent of the patients with a deranged physiologic parameter died in hospital compared with 18% without ($p < 0.001$). The presence of a deranged physiologic parameter was associated with mortality (adjusted odds ratio, 4.64; 95% CI, 1.95–11.09). Mortality increased with increasing number of deranged physiologic parameters (odds ratio per deranged physiologic parameter, 2.24 [1.53–3.26]). Every individual deranged physiologic parameter was associated with mortality with unadjusted odds ratios between

1.92 and 16.16. A National Early Warning Score of greater than or equal to 7 had an association with mortality (odds ratio, 2.51 [1.23–5.14]). **Conclusion:** Single deranged physiologic parameters at admission are associated with mortality in a critically ill population in a low-income country. As a measure of illness severity, single deranged physiologic parameters are as useful as a compound scoring system in this setting and could be termed "danger signs." Danger signs may be suitable for the basis of routines to identify and treat critically ill patients.

43. **Baker T, Schell CO, Lugazia E, Blixt J, Mulungu M, Castegren M, Eriksen J, Konrad D. Vital Signs Directed Therapy: Improving Care in an Intensive Care Unit in a Low-Income Country. *PloS one*. 2015; 10(12):e0144801.**

    Background: Global Critical Care is attracting increasing attention. At several million deaths per year, the worldwide burden of critical illness is greater than generally appreciated. Low income countries (LICs) have a disproportionally greater share of critical illness, and yet critical care facilities are scarce in such settings. Routines utilizing abnormal vital signs to identify critical illness and trigger medical interventions have become common in high-income countries but have not been investigated in LICs. The aim of the study was to assess whether the introduction of a vital signs directed therapy protocol improved acute care and reduced mortality in an Intensive Care Unit (ICU) in Tanzania. **Methods and Findings:** Prospective, before-and-after interventional study in the ICU of a university hospital in Tanzania. A context-appropriate protocol that defined danger levels of severely abnormal vital signs and stipulated acute treatment responses was implemented in a four week period using sensitization, training, job aids, supervision and feedback. Acute treatment of danger signs at admission and during care in the ICU and in-hospital mortality were compared pre and post-implementation using regression models. Danger signs from 447 patients were included: 269 pre-implementation and 178 post-implementation. Acute treatment of danger signs was higher post-implementation (at admission: 72.9% vs 23.1%, $p<0.001$; in ICU: 16.6% vs. 2.9%, $p<0.001$). A danger sign was five times more likely to be treated post-implementation (Prevalence Ratio (PR) 4.9 (2.9–8.3)). Intravenous fluids were given in response to 35.0% of hypertensive episodes post-implementation, as compared to 4.1% pre-implementation (PR 6.4 (2.5–16.2)). In patients admitted with hypotension, mortality was lower post-implementation (69.2% vs.

92.3% p = 0.02) giving a numbers-needed-to-treat of 4.3. Overall in-hospital mortality rates were unchanged (49.4% vs. 49.8%, p = 0.94). **Conclusion:** The introduction of a vital signs directed therapy protocol improved the acute treatment of abnormal vital signs in an ICU in a low-income country. Mortality rates were reduced for patients with hypotension at admission but not for all patients.

44. **Bakuza J. Epidemiology of intestinal schistosomiasis in selected localities along the shores of Lake Tanganyika, Tanzania. *3rd MUHAS Scientific Conference, 2015.***

Background: Intestinal schistosomiasis due to Schistosoma mansoni poses a major public health problem in Tanzania. Despite that, its distribution and transmission risk factors are not well known, particularly in the country's western areas. **Objectives:** This study was initiated to: 1) determine the current infection levels of S. mansoni in Gombe National Park and the neighboring villages of Mwamgongo, Bugamba, Kiziba and Mtanga; and 2) relate the infection prevalence and intensity to locality, host sex and age. **Methods**: Between January and September 2010, stool samples were collected from 235 children and 171 adults and examined for parasite ova using the Kato-Katz technique. **Results**: S. mansoni infection was recorded at an overall prevalence of 45% across study sites, ranging from 19% at Mtanga to 68% at Mwamgongo. The mean intensity was 18 eggs per Kato Katz slide, ranging from 1 to 225 eggs and a median of 8 eggs. Generalized Linear Models were used to analyze parasite data, applying binomial distribution models for prevalence and Zero-inflated negative binomial (ZINB) for intensity. A hierarchical analysis for the best fitting model indicated that host sex did not influence infection variation, while age and site interacted strongly. The analysis showed significant variation of S. mansoni prevalence between age groups, which also depended on site. ZINB analysis results showed also that egg counts significantly varied between age groups and across study sites. **Conclusion:** These findings indicate a high infection of intestinal schistosomiasis in the study area, suggesting that the distribution of the disease in the country could be more widespread than previously thought. They also confirm that the infection of intestinal schistosomiasis in the area is focal, with marked variations between adjacent villages.

45. **Beckham SW, Shembilu CR, Brahmbhatt H, Winch PJ, Beyrer C, Kerrigan DL. Female sex workers' experiences with intended pregnancy and antenatal care services in southern Tanzania. *Studies in family planning*. 2015; 46(1):55-71.**

    Understanding the pregnancy experiences of female sex workers (FSWs), especially in the context of high rates of HIV and sexually transmitted infections (STIs), is essential to tailoring services to meet their needs. This study explores FSWs' experiences with intended pregnancy and access to antenatal care and HIV testing in two regions of Tanzania. Thirty in-depth interviews and three focus group discussions were conducted. FSWs sought to become pregnant to gain respect as mothers, to avoid stigma, and/or to solidify relationships, sometimes posing risks to their own and their partners' health. Pregnant FSWs generally sought antenatal care (ANC) services but rarely disclosed their occupation, complicating provision of appropriate care. Accessing ANC services presented particular challenges, with health care workers sometimes denying all clinic services to women who were not accompanied by husbands. Several participants reported being denied care until delivery. The difficulties participants reported in accessing health care services as both sex workers and unmarried women have potential social and health consequences in light of the high levels of HIV and STIs among FSWs in sub-Saharan Africa.

46. **Beckham SW, Shembilu CR, Winch PJ, Beyrer C, Kerrigan DL. 'If you have children, you have responsibilities': motherhood, sex work and HIV in southern Tanzania. *Culture, health & sexuality*. 2015; 17(2):165-79.**

    Many female sex workers begin sex work as mothers, or because they are mothers, and others seek childbearing. Motherhood may influence women's livelihoods as sex workers and their subsequent HIV risks. We used qualitative research methods (30 in-depth interviews and three focus group discussions) and employed Connell's theory of Gender and Power to explore the intersections between motherhood, sex work, and HIV-related risk. Participants were adult women who self-reported exchanging sex for money within the past month and worked in entertainment venues in southern Tanzania. Participants had two children on average, and two-thirds had children at home. Women situated their socially stigmatised work within their respectable identities as mothers caring for their

children. Being mothers affected sex workers' negotiating power in complex manners, which led to both reported increases in HIV-related risk behaviours (accepting more clients, accepting more money for no condom, anal sex), and decreases in risk behaviours (using condoms, demanding condom use, testing for HIV). Sex workers/mothers were aware of risks at work, but with children to support, their choices were constrained. Future policies and programming should consider sex workers' financial and practical needs as mothers, including those related to their children such as school fees and childcare.

47. **Bilal M, Shafiq M, Khan B. "Antiperovskite compounds SbNSr 3 and BiNSr 3: Potential candidates for thermoelectric renewable energy generators."** ***Physics Letters A*****. 2015. 379(3): 206-210.**

    This letter communicates thermoelectric properties of antiperovskites $SbNSr_3$ and $BiNSr_3$, using ab-initio calculations. These compounds are identified as good transport materials for their narrow band gaps and dense electronic states near their Fermi levels. The peak values of Seebeck coefficient of 1590 and 1540 μV/K are observed for $SbNSr_3$ and $BiNSr_3$, respectively in the *p*-type regions, at room temperature. The figure of merit approaches unity for both materials, while their thermal conductivities increase and electrical conductivities decrease with temperature. These theoretical studies predict that these antiperovskites could be efficient materials for thermoelectric generators and need further experimental and theoretical studies.

48. **Binde YH. Prevalence of Abnormal Lung Function Tests and Associated Clinical Features Among HIV Infected Children Aged 7-18 Years In Dar Es Salaam, Tanzania Master of Medicine (Pediatrics and Child Health)** ***Dissertations 2015.*** **Muhimbili University of Health and Allied Sciences.**

    Background: HIV/AIDS is still a major health burden in Sub-Saharan Africa and the whole world at large. Recent data from African countries shows the prevalence of chronic lung disease (CLD) is high in children living with HIV/AIDS. With the initiation of antiretroviral medications early in infancy, many HIV infected children are expected to live longer, hence prone to other comorbid conditions including chronic lung disease. There is no study which has been done in Tanzania to assess the abnormal lung function

tests in children living with HIV/AIDS. Hence this study will provide the baseline information about the magnitude and risks factors for chronic lung disease. **Objective:** To determine the prevalence of abnormal lung function tests and associated clinical features among HIV infected children aged 7-18 years in Dar es salaam, Tanzania. **Methodology:** This was a hospital-based cross-sectional study design, carried out in two centres, Infectious Disease Centre and Muhimbili National Hospital care and treatment clinics (CTC). Both clinics are situated within Ilala Municipality in Dar es Salaam Tanzania. Study duration was nine months. Study population included all HIV infected children aged 7-18 years who attend both centres. A structured questionnaire was used for collection of data. After the history was obtained, children underwent physical examination before assessment of lung functions by spirometry. Data were analyzed using Statistical Package for Social Science (SPSS) version 20. Continuous variables were expressed as mean, standard deviation, median and interquartile ranges. Chi-square and fisher's exact test were used to compare categorical variables. Student's T-test and Mann Whitney U test were used to determine if there was any significant difference between the groups with normal and abnormal functions. A P-value of <0.05 was considered statistically significant. **Results:** A total of 121 children aged 7-18 years were included in this study. There was predominance of adolescents 82 (67.8%). Males were 75 (62%) and over half of the children 67 (55.4%) were orphans. The prevalence of abnormal lung function tests was found to be 17.4% (95% CI=10.7-24.8). Pulse oximetry findings showed that, none of the study participants were hypoxic at rest or post exercise. Physical findings revealed a history of chronic cough in half, lung crepitations in 19%, and peripheral cyanosis in 14% of the study participants. All these signs were associated with abnormal lung function tests ($p=0.021$, $p<0.01$, $p<0.01$ respectively). Most children 15 (71.4%) had advanced WHO HIV clinical disease stage (III & IV). However CD4 cell count did not affect the lung function tests ($p=0.560$). The median duration of HIV infection since diagnosis and the median duration on Antiretroviral Therapy (ART) use were comparatively short, 246 weeks (IQR 128 - 418) and 243 weeks (IQR 123 - 356) respectively. Assuming that most children acquire HIV infection through vertical transmission, it implies that they were diagnosed late and hence late initiation on ART which may have contributed to the abnormal lung function tests. **Conclusion and**

Recommendation: The prevalence of abnormal lung function tests in HIV infected children is relatively high. This implies that chronic lung disease may go undetected and can contribute to high morbidity and mortality in this population. Presence of chronic cough, peripheral cyanosis and lung crepitations have shown to be important features in HIV infected children with lung function impairment. HIV infected children presenting with chronic cough, peripheral cyanosis and lung crepitations should undergo lung function tests for early detection of chronic lung disease. Further studies should be done to identify the actual cause of chronic lung disease among HIV infected children. This will allow timely and appropriate management which may improve their quality of life.

49. **Bintabara D, Mohamed MA, Mghamba J, Wasswa P, Mpembeni R. Birth preparedness and complication readiness among recently delivered women in chamwino district, central Tanzania: a cross sectional study.** ***Reproductive health*****. 2015; 12(1):1.**

Background: Unacceptably high maternal mortality rates remain a challenge in developing countries such as Tanzania. Birth Preparedness and Complication Readiness is among the key interventions that can reduce maternal mortality. Despite this, its status in Tanzania is not well documented. We assessed the practice and determinants of Birth preparedness and complication readiness among recently delivered women in Chamwino district, Central Tanzania. **Methods**: A community based cross-sectional study was conducted to women who delivered two years prior to survey in January 2014 at Chamwino district, Tanzania. Woman was considered as prepared for birth and its complication if she reported at least three of these; know expected date of delivery, saved money, identified a skilled birth attendant/health facility, mode of transport and Identified two compatible blood donors. Descriptive, bivariate and multivariable logistic regression analyses were performed at P value < 0.05 level of significance. **Results**: We interviewed 428 women whose median age (IQR) was 26.5 (22–33) years. About 249 (58.2 %) of the respondents were considered as prepared for birth and its complications. After controlling for confounding and clustering effect, significant determinants of birth preparedness and complication readiness were found to be maternal education (AOR = 2.26, 95 % CI; 1.39, 3.67), spouse employment (AOR = 2.18, 95 % CI; 1.46, 3.25), booking at ANC (AOR = 2.03, 95 % CI; 1.11, 3.72), Four or more antenatal visits, (AOR = 1.94, 95 % CI;

1.17, 3.21) and knowledge of key danger signs (AOR = 4.16, 95 % CI; 2.32, 7.45). Prepared for birth was found to be associated with institutional delivery (AOR = 2.45, 95 % CI; 1.12, 5.34). **Conclusion**: The proportion of women who prepared for birth and its complications were found to be low. District reproductive and child health coordinator should emphasis on early and frequent antenatal care visits, since they were among predictors of birth preparedness and complication readiness.

50. **Bosch P, Thomas S. "A proof of Bondesson's conjecture on stable densities."** ***ArkivförMatemati.*** **2015; 1-8.**

    We show that positive α-stable densities are hyperbolically completely monotone if and only if $\alpha \leq 1/2$. This gives a positive answer to a question raised by L. Bondesson in 1977.

51. **Bosch P, Thomas S. "On the infinite divisibility of inverse Beta distributions."** ***Bernoulli. 2015; 21(4): 2552-2568.***

    We show that all negative powers of the Beta distribution are infinitely divisible. The case *[Math Processing Error]* follows by complete monotonicity, the case *[Math Processing Error]*, *[Math Processing Error]* by hyperbolically complete monotonicity and the case *[Math Processing Error]*, *[Math Processing Error]* by a Levy perpetuity argument involving the hyper geometric series. We also observe that *[Math Processing Error]* is self-decomposable if and only if *[Math Processing Error]*, and that in this case it is not necessarily a generalized Gamma convolution. On the other hand, we prove that all negative powers of the Gamma distribution are generalized Gamma convolutions, answering to a recent question of L. Bondesson.

52. **Bromberg JS, Fricke WF, Brinkman CC, Simon T, Mongodin EF. "Microbiota mdash implications for immunity and transplantation."** ***Nature Reviews Nephrology.*** **2015; 11(6): 342-353.**

    Each individual harbours a unique set of commensal microorganisms, collectively referred to as the microbiota. Notably, these microorganisms exceed the number of cells in the human body by 10-fold. This finding has accelerated a shift in our understanding of human physiology, with the realization that traits necessary for health are both encoded and influenced by the human genome and the microbiota. Our understanding of the

aetiology of complex diseases has, therefore, evolved with increasing awareness that the human microbiota has an active and critical role in maintaining health and inducing disease. Indeed, findings from bioinformatic studies indicate that the microbiota and microbiome have multiple effects on the innate and adaptive immune systems, with effects on infection, autoimmune disease and cancer. In this Review, we first address the important statistical and informatics aspects that should be considered when characterizing the composition of microbiota. We next highlight the effects of the microbiota on the immune system and the implications of these effects on organ failure and transplantation. Finally, we reflect on the future perspectives for studies of the microbiota, including novel diagnostic tests and therapeutics.

53. **Buma D, Bakari M, Fawzi WW (et al). "The Influence of HIV-Status Disclosure on Adherence, Immunological and Virological Outcomes among HIV-Infected Patients Started on Antiretroviral Therapy in Dar-es-Salaam."** ***Tanzania. J HIV AIDS.*****2015;** ***1.3.***

Background: Disclosure of HIV status pose a great challenge in many societies due to associated stigma. We prospectively investigated whether or not HIV-status disclosure before commencement of antiretroviral therapy (ART) has influence on adherence, immunological response and viral load suppression (VLS) in HIV-infected patients. **Methods:** Using systematic sampling, 520 HIV-infected patients were selected prior to initiation of ART from 4 HIV care and treatment clinics (CTC) in Dar-es-Salaam. Data on HIV status disclosure and adherence were collected using a structured questionnaire, while viral load and CD4+ T-cell counts were determined through laboratory investigations. Patients were followed up for one year. We performed logistic regression to determine the association between HIV status disclosure and the outcomes. **Results:** Four hundred and sixty two patients were analyzed, of whom 136 (29.4%) were males. Sixty (13%) and 310 (67.1%) of the study patients disclosed their HIV-status early and late respectively, while 92 (19.9%) did not disclose their HIV-status. Between males and females in each category, male had low number of HIV-status disclosure, $p<0.05$. The proportion adhering to therapy of 96.7% was higher in patients who disclosed their HIV-status before ART initiation compared to that of 85.4% among those who disclosed later on, $p=0.0109$. There was a statistically significant difference in terms of CD4+ T-cell

counts recovery between patients who disclosed earlier and those who disclosed later on, p=0.0341. A statistically significant difference in terms of viral load suppression was also noted between early and later HIV status disclosure, p=0.0036. **Conclusion:** Disclosure of HIV-status before initiation of ART improves patients' adherence, and has a positive influence on CD4+ T-cell counts recovery as well as viral load suppression.

54. **Buma D, Fawzi WW, Bakari M (et al). "Virological Response Following Anti-Retroviral Therapy Employing Once-A-Day 30mg of Stavudine in HIV-Infected Patients: A 24-Week Randomized Controlled Study in Dar Es Salaam."** ***Tanzania. J Virol Emerg Dis.*** **2015;** ***2.1*****.**

Background Stavudine at a dose of 30mg has been in use for more Thana decade. Its toxicity remains a challenge and phase out has picked up. However, the information about viral load suppression (VLS) at once-a-day dosing is lacking. A prospective open-label randomized controlled study was conducted. **Methods:** Naïve HIV infected patients were equally randomized either to receive stavudine 30mg once-daily or zidovudine standard dose regimens. Viral load, hemoglobin (Hb), alanine amino transferase (ALT), Body Mass Index (BMI), opportunistic infections (OIs) at baseline and six months were determined. Changes at baseline and six months were compared within and between-groups. Our outcome was the proportion of patients who attained VLS< 400 copies/mL at six months. **Results:** Four hundred and eighty three patients aged ≥ 18 years were analyzed. The overall mean standard deviation (SD) age was of 39 (9) years, 41 (9) and 38 (9) for males and females respectively. The two groups were similar in demographic, clinical and other laboratory indices at baseline. At six months, VLS< 400 copies/mL was 73.2%, there was no statistically significant differences been groups. There was no statistically significant differences been males and females. Patients with age >40 years were more likely to have VLS by 8% compared to young ones, risk ratio (95% CI) being 0.921 (0.829, 1.023; p=0.1275) **Conclusion:** Viral load suppression for stavudine 30 mg once-a-day was similar to zidovudine standard regimen. However, long follow up period is recommended to determine efficacy and long term side effects at our recommended dose.

55. **Buma D, Moshiro C, Bakari M, Fawzi WW, Mugusi F. Clinical and Immunological Effects of a reduced daily dose of Stavudine among Antiretroviral naïve HIV-infected individuals in Dar es Salaam, Tanzania: A randomized, controlled study. *3rd MUHAS Scientific Conference,* 2015.**

Background: Although recent WHO guidelines recommend withdrawing stavudine (d4T) from first-line ART therapy, it remains commonly used in resource-constrained settings. We compared the immunological and clinical effects of further reduction of stavudine dose to 30mg once-daily in the prospective open-label randomized controlled study. **Methods:** Naïve HIV infected patients were equally randomized either to receive stavudine 30mg once-daily or zidovudine standard dose regimens. CD4 counts, haemoglobin (Hb), alanine aminotransferase (ALT), Body mass index (BMI), WHO stage and patients' morbidity at baseline, three and six months were determined. Changes from baseline, three and six months were compared within-and between-groups. **Results:** Five hundred and twenty patients aged ≥ 18 years were analysed. Males were 159 (30.6%) with the mean age of 39 years. At baseline, the arms were similar in demographics, clinical and laboratory indices. Within group comparison indicated that there were statistically significant increases in CD4 counts, BMI, and Hb ($p<0.0001$) from baseline to three and six months in both groups. However, a between group comparison did not indicate any differences in terms of CD4 counts between stavudine and zidovudine based regimens. Furthermore, a between group comparison of clinical features showed no statistically significant differences at baseline, three and six months. However, a statistically significant decrease in incidence rate of opportunistic infectionswas observed.Between group comparison showed that the zidovudine based group had lower mean haemoglobin level at three and six months compared to baseline with $p=0.048$ and $p<0.0001$ respectively. Additionally, liver damage indicated by ALT was statistically significant; $p < 0.0001$ favored the stavudine based group at six months. There were no statistically significant differences in ALT between the groups at three months. **Conclusion:** The immunological and clinical outcomes for a reduced dose of stavudine to 30mg once-daily are similar to that of standard zidovudine-based antiretroviral regime.

56. **Busigazi JK. Victimization of Adults with Mental Illness: A Cross Sectional Study at Outpatient Psychiatry Clinic in Muhimbili National Hospital Dar Es Salaam, Tanzania. Master of Science (Nursing of Mental Health)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Globally, 1 in 4 (25%), suffer from mental disorders in their lifetime in both high and low income countries. Four of the six leading causes of years lived with disability are depression, alcohol use disorders, schizophrenia, and bipolar disorder (WHO, 2013). Mentally ill people have been found to experience more violence than the general population. In Tanzania 2.5 million people are estimated to suffer from mental illness (Basic Needs, 2009). **Aim:** Specifically this study aimed to assess victimization among adults with mental illness at the Outpatient Psychiatric Clinic of Muhimbili National Hospital in Dar es Salaam, Tanzania. The study was hospital based descriptive cross-sectional study using quantitative methods to collect data. **Methods:** This was a cross sectional study that took a snapshot of the situation during the period of data collection. The study was conducted with adults with mental illness attending the Psychiatric Out-patient Clinic. The participants were interviewed using a standard structured interview about victimization of mentally ill adults. The questionnaire included social- demographic variables such as age, marital status, educational level, employment and clinical variables such as diagnosis. The principal researcher with assistance from two research assistants collected data. Analysis of the collected data accomplished using computer software with SPSS version 20. For continuous variables (e.g. age) the mean, range , and standard deviation (SD) used, distribution and percentages done for continuous variables, frequencies and proportions for categorical variables. Cross tabulation performed ' between selected independent and dependent variables for statistical significance of_ 0.05 used. **Results:** The sample was composed of 284 participants, 149 (52.5%) being males, and 135 (47 .5%). The prevalence of victimization was (50.4%). In vicariate analysis no significant difference in male and female with forced sex (p-value 0.213) sexual an abuse (p-value 0.668) sharp object (0.668), beaten (p-value 0.011) bitten (p•value 0.499) strangled (p-value 0.11) pushed (p-value < 0.001) threatened by gun (p-value 0.217) grabbed (p-value 0.217). Female were more often beaten than male with p-value of 0.01 1. Males were more often pushed (13.3%) than

females (0.7%) with p- value < 0.011. There was no significant difference by education and occupation. The only significant predictor of victimization was marital status. People who were married were more likely to be victimized. **Conclusion and Recommendation:** Victimization among adults with mental illness attending Psychiatric Clinic is common. Majority of participants have experienced victimization in the past one year. Victimization was more prevalent among those who were married and most of them were females. There is need to implement routine screening for victimization among clients attending Psychiatric Clinic at MNH.

57. **Camara DN. Clinical characteristics and determinants of dengue infections among febrile cases in Dar Es Salaam, Tanzania. Master of Science (Applied Epidemiology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences***. Background: In the 21st Century, dengue incidence, outbreak frequency and global distribution have reached unprecedented levels. Dengue control relies on surveillance, case management and vector control. Investigations into socio-demographic, behavioural and environmental factors can provide foresight into the appropriateness of dengue control efforts and contribute to effective management in an ever-changing environment. Main **Objective:** To determine the clinical characteristics, socio- demographic, behavioural and environmental risk factors for dengue infections among febrile cases in Dar es Salaam, Tanzania. **Methods:** An unmatched case control analysis of data from a dengue outbreak investigation in Dar es Salaam in June 2014 was conducted. Cases were serologically confirmed dengue positive patients using SD Bioline Duo dengue rapid test. Univariate and multiple logistic regression models were run to identify socio-demographic, behavioural and environmental risk factors for dengue infection. Odds ratio and their 95% confidence interval are presented. P value was two-tailed and set at α = 5%.Epi info version 3.5.1 was used to analyse data. **Results:** A total of 81 cases and 281 controls were included in the analysis. Majority of the cases and controls constituted male individuals (64.2% vs 54.1%) of above 15 years of age (88.9% vs 72.9%). The mean age of cases was higher (30 ±13.93 years) than controls (24± 14.84years).The clinical symptoms that showed statistical significance between cases and controls were joint pain (P< 0.0001), muscle pain (P<0.0001) and abdominal pain (P<0.005). Multivariate logistic regression identified that living in Kinondoni district, employed (aOR = 2.06; 95% CI:

1.06 - 4.04), presence of piped water at home (aOR = 2.63; 95% CI: 1.40 - 4.95), visitation to a health care facility during a previous one month (aOR = 1.94; 95% CI: 1.11 - 3.38) and presence of screened windows either at work or home (aOR = 2.65; 95% CI: 1.03 - 6.78) posed significantly risk for dengue infection while travelling out of Dar es Salaam in the last 14 days (aOR = 0.31; 95% CI: 0.10 - 0.95) was a protective factor for dengue infection. **Conclusion:** Fever, joint, muscle and abdominal pain were the commonest clinical manifestations among dengue patients. Being employed and living in Kinondoni district were socio- demographic risk factors for dengue infection. Behavioural risk factors for dengue infection were visitation to a health care facility in the previous one month and presence of screened window either at work or home whereas presence of piped water at home was a major environmental risk factor for dengue infection.

58. **Chacha CE, Kazaura MR, "Body-art practices among undergraduate medical university students in Dar Es Salaam, Tanzania, 2014."*Indian journal of dermatology.* 2015; 60(2): 212.**

Background: Body-art practices are increasing among adolescents and young adults. Although substantial data are available in developed countries, little has been documented about body-art practices in developing countries. **Objective:** To determine the magnitude, types and reasons for practicing body-art practices among undergraduate medical University students in Dar es Salaam, Tanzania. Materials and **Methods:** A cross-sectional descriptive study was conducted among undergraduate University students in Dar es Salaam involving 536 respondents from two Universities. We used a self-administered questionnaire to collect data. Analyses were based on summary measures and bivariate analyses. **Results:** While 7.5% of undergraduate students reported having tattoos, 20% reported having body puncturing or piercing. Body piercing is reported more among female university undergraduate students than their male counterparts. Reported main reasons for undergoing body-art include “a mark of beauty,” 24%, “just wanted one,” 18% and “a mark of femininity or masculinity,” 17%. The majority (98%) of students were aware that unsafe body-art practices may lead to contracting HIV and more than half (52%) reported awareness of the risk of Hepatitis B infection. **Conclusions:** Despite high awareness of the potential risks involved in unsafe

body arts that include tattoo and piercing, these practices are increasing among adolescents and young adults. There is need to have educational and counseling efforts so as to minimize associated health risks**.**

59. **Chandraratne S, (et al.) "Critical role of platelet glycoprotein Ibα in arterial remodeling."** ***Arteriosclerosis, thrombosis, and vascular biology. 2015;*** **35(3): 589-597.**

Objective—Arteriogenesis is strongly dependent on the recruitment of leukocytes, especially monocytes, into the perivascular space of growing collateral vessels. On the basis of previous findings that platelets are central players in inflammatory processes and mediate the recruitment of leukocytes, the aim of this study was to assess the role of platelets in a model of arterial remodeling. Approach and **Results—**C57Bl6 wild-type mice, *IL4-R/Iba* mice lacking the extracellular domain of the glycoprotein Ibα (GPIbα) receptor, and mice treated with antibodies to block GPIbα or deplete circulating platelets were studied in peripheral arteriogenesis. Using a novel model of intravital 2-photon and epifluorescence imaging, we visualized and quantified the interaction of platelets with leukocytes and the vascular endothelium in vivo. We found that transient platelet adhesion to the endothelium of collateral vessels was a major event during arteriogenesis and depended on GPIbα. Furthermore, leukocyte recruitment was obviously affected in animals with defective platelet GPIbα function. In *IL4-R/Iba* mice, transient and firm leukocyte adhesion to the endothelium of collateral vessels, as well as leukocyte accumulation in the perivascular space, were significantly reduced. Furthermore, we detected platelet–leukocyte aggregates within the circulation, which were significantly reduced in *IL4-R/Iba* animals. Finally, platelet depletion and loss of GPIbα function resulted in poor reperfusion recovery as determined by laser Doppler imaging. **Conclusions—**Thus, GPIbα-mediated interactions between platelets and endothelial cells, as well as leukocytes, support innate immune cell recruitment and promote arteriogenesis-establishing platelets as critical players in this process.

60. **Changamire FT, Mwiru RS, Peterson KE, Msamanga GI, Spiegelman D, Petraro P, Urassa W, Fawzi WW. Effect of multivitamin supplements on weight gain during pregnancy among HIV-negative women in Tanzania.** ***Maternal & child nutrition*****. 2015; 11(3):297-304.**

Multivitamin supplementation has been shown to reduce the risk of low birthweight. This effect could be mediated through gestational weight gain. However, the effect of multivitamin supplementation on weight gain during pregnancy has not been fully studied. The objective of this study was to examine the effects of multivitamins on pregnancy weight gain. We enrolled 8468 HIV-negative women from Dar es Salaam, Tanzania, in a randomised, placebo-controlled trial of multivitamins on birth outcomes. Women were randomly assigned to receive either a daily oral dose of multivitamin tablets or a placebo and were weighed every 4 weeks from enrolment until the last visit before delivery. Intent-to-treat analyses were carried out to examine the effects of multivitamins on pregnancy weight gain. Multivariate linear and binomial regression models with the log-link function were used to examine the association of weight gain during pregnancy to birthweight. The overall total weight gain was 253 g (SE: 69, P: 0.0003) more, while the overall 4 weekly weight gain was 59 g greater (SE: 18, P: 0.005) among women who received multivitamins compared to placebo. Women in the lowest quartile of gestational weight gain had babies with an average birthweight of 3030 g (SD: 524), while women in the highest quartile had babies weighing 3246 g (SD: 486), on average. Prenatal multivitamin supplements increased gestational weight gain, which was a significant predictor of birthweight.

61. **Chaula S, Tarimo D. Impact of Praziquantel mass drug administration campaign on prevalence and intensity of Schistosoma haemamtobium among schoolchildren in Bahi district, Tanzania. *3rd MUHAS Scientific Conference, 2015.***

Background: As part of the Tanzania National Schistosomiasis Control Programme, Bahi districtin central Tanzania received two annual rounds of Praziquantel mass drug administration (MDA) to control urinary schistosomiasis in schoolchildren. This study assessed (i) the impact of the two rounds of MDA on prevalence and intensity of *S. haemamtobium* and (ii) the impact of MDA campaigns on knowledge of urinary schistosomiasis, safe water use and contact with potentially unsafe water bodies.**Methods:** A quantitative cross-sectional study was carried out among schoolchildren in March and April, 2013. A structured questionnaire was used to collect information on MDA uptake, knowledge of schistosomiasis, sources of water for domestic and other uses. Urine samples were collected from each pupil to examine

prevalence and intensity of *S.haematobium*. Transmission of schistosomiasis was assessed by sampling *Bulinus* spps snails for cercarial shedding. **Results:** Uptake of MDA was 39.5% in 2011 and 43.6% in 2012. Prevalence of *S. haematobium* significantly dropped by 50.0% from 26% in 2011 to 15% in 2012 (p = 0.000). Prevalence of *S. haematobium* was significantly low in MDA participating (3.1%) than non-participating (28.5%) schoolchildren (p = 0.000). MDA campaigns had significant impact on knowledge of the disease (p = 0.02) and borderline impact on safe water use (p = 0.04) but had no impact on avoidance of contact with unsafe water bodies (p = 0.06). *Bulinus* spps snails were found shedding schistosome cercariae indicating environmental contamination with viable *S. haematobium* eggs.**Conclusion:** ThoughMDA significantly reduced prevalence of *S. haematobium*; uptake was below 50.0% and below the World Health Assembly resolution 54.19 target of 75.0% for 2010. Non-participation in MDA was the likely source of *S. haematobium* eggs in the environment hence the observed 15.0% prevalence of *S.haematobium* infection; and cercarial shedding *Bulinus spps* snails indicating continuity of transmission hence the need for further health promotion campaigns.

62. **Chebet J, McMahon SA, Mosha I. "“Every method seems to have its problems”-Perspectives on side effects of hormonal contraceptives in Morogoro Region, Tanzania." BMC women's health .2015; 15 (1)1**.

    Background: Family planning has been shown to be an effective intervention for promoting maternal, newbornand child health. Despite family planning's multiple benefits, women's experiences of - or concerns related to - sideeffects present a formidable barrier to the sustained use of contraceptives, particularly in the postpartum period.This paper presents perspectives of postpartum, rural, Tanzanian women, their partners, public opinion leaders andcommunity and health facility providers related to side effects associated with contraceptive use. **Methods:** Qualitative interviews were conducted with postpartum women (n = 34), their partners (n = 23), Community leaders (n = 12) and health providers based in both facilities (n = 12) and communities (n = 19) across.Morogoro Region, Tanzania. Following data collection, digitally recorded data were transcribed, translated andcoded using thematic analysis. **Results:** Respondents described family planning positively due to the health and economic benefits associated

with limiting and spacing births. However, side effects were consistently cited as a reason that women and theirpartners choose to forgo family planning altogether, discontinue methods, switch methods or use methods in anintermittent (and ineffective) manner. Respondents detailed side effects including excessive menstrual bleeding, missed menses, weight gain and fatigue. Women, their partners and community leaders also described concernsthose contraceptives could induce sterility in women, or harm breastfeeding children via contamination of breastmilk. Use of family planning during the postpartum period was viewed as particularly detrimental to a newborn'shealth in the first month's oflife. **Conclusions:** To meet Tanzania's national target of increasing contraceptive use from 34 to 60 % by 2015, appropriate counseling and dialogue on contraceptive side effects that speaks to pressing concerns outlined bywomen, their partners, communities and service providers are needed.

63. **Chebet J, George A, Frumence G, Mosha I, Applegate J, Chitama D, Winch P, Killewo J, Charles K. Moving Towards ART for Life for Pregnant and Lactating Mothers in Tanzania: An Exploratory Qualitative Study of Stakeholder Viewpoints.** ***3rd MUHAS Scientific Conference,*** **2015.**

Background: Vertical transmission of HIV accounts for 90% of the estimated 430,000 children infected by HIV annually. Policies on the Prevention of Mother to Child Transmission have evolved in recent years based on WHO guidelines. Early 2014 Tanzania saw the inauguration of option B+, which entails lifelong ART for pregnant and lactating mothers with the goal of eliminating vertical transmission of HIV. **Objective:** To assess key stakeholder viewpoints on the implementation of the new guidelines on elimination of mother to child transmission using Option B+ regimen**. Methods:** Cross-sectional qualitative study methods were employed, using semi-structured in-depth interviews. At all levels, interview guides explored awareness, perceived implementation challenges, and perceived roles each respondent group envisions they will play in the implementation of the program. Data was thematically analyzed. **Results:** Although option B+ was known and accepted at the national, regional and district levels, health providers, and more so CHWs were unaware of the new policy. Despite not fully understanding the policy change, all respondents were responsive and emphasized their willingness to implement the policy once it was disseminated to their level. Anticipated

barriers to the implementation and sustainability of the program were related to adequate and consistent drug supply, especially due to heavy donor dependence for the program. Based on level of influence and agreement with option B+, the MoHSW, global level stakeholders and funders emerged as the major drivers of the program. Regional and district levels emerged as critical supporters of option B+. However, because of their relatively low level of influence, facility and community level stakeholders were categorized as bystanders. **Conclusions**: Tanzania is working towards the elimination of mother to child HIV transmission. Option B+ has been identified as one of the methods to accomplish this goal. Adequate and consistent ART drugs supply is required for a successful program.

64. **Chebet J, McMahon SA, Greenspan JA, Mosha I, Callaghan-Koru JA, Killewo J, Baqui AH, Winch PJ. "Every method seems to have its problems"-Perspectives on side effects of hormonal contraceptives in Morogoro Region, Tanzania. *BMC women's health*. 2015; 15(1):1.**

Background: Family planning has been shown to be an effective intervention for promoting maternal, newborn and child health. Despite family planning's multiple benefits, women's experiences of - or concerns related to - side effects present a formidable barrier to the sustained use of contraceptives, particularly in the postpartum period. This paper presents perspectives of postpartum, rural, Tanzanian women, their partners, public opinion leaders and community and health facility providers related to side effects associated with contraceptive use. **Methods:** Qualitative interviews were conducted with postpartum women (n = 34), their partners (n = 23), community leaders (n = 12) and health providers based in both facilities (n = 12) and communities (n = 19) across Morogoro Region, Tanzania. Following data collection, digitally recorded data were transcribed, translated and coded using thematic analysis. **Results:** Respondents described family planning positively due to the health and economic benefits associated with limiting and spacing births. However, side effects were consistently cited as a reason that women and their partners choose to forgo family planning altogether, discontinue methods, switch methods or use methods in an intermittent (and ineffective) manner. Respondents detailed side effects including excessive menstrual bleeding, missed menses, weight gain and fatigue. Women, their partners and community leaders also

described concerns that contraceptives could induce sterility in women, or harm breastfeeding children via contamination of breast milk. Use of family planning during the postpartum period was viewed as particularly detrimental to a newborn's health in the first months of life. **Conclusions:** To meet Tanzania's national target of increasing contraceptive use from 34 to 60 % by 2015, appropriate counseling and dialogue on contraceptive side effects that speaks to pressing concerns outlined by women, their partners, communities and service providers are needed.

65. **Chiang LF, Gladden MR, (et al.) "HIV and childhood sexual violence: implications for sexual risk behaviors and HIV testing in Tanzania."** ***AIDS Education and Prevention.*** **2015; 27(5): 474-487.**

Prior research has established an association between sexual violence and HIV. Exposure to sexual violence during childhood can profoundly impact brain architecture and stress regulatory response. As a result, individuals who have experienced such trauma may engage in sexual risk-taking behavior and could benefit from targeted interventions. In 2009, nationally representative data were collected on violence against children in Tanzania from 13–24 year old respondents (n = 3,739). Analyses show thatfemales aged 19–24 (n = 579) who experienced childhood sexual violence, were more likely to report no/infrequent condom use in the past 12 months (AOR = 3.0, CI [1.5, 6.1], p = 0.0017) and multiple sex partners in the past 12 months (AOR = 2.3, CI [1.0, 5.1], p = 0.0491), but no more likely to know where to get HIV testing or to have ever been tested. Victims of childhood sexual violence could benefit from targeted interventions to mitigate impacts of violence and prevent HIV.

66. **Chidzonga MM, Chidzonga LC, Kalyanyama BM, Kwamin F, Originn FO "Determinants of oral diseases in the African and Middle East region**.*"* ***Advances in dental research.*** **2015:** ***27(1); 26-31.***

Oral health policies must be developed that emphasize the role of social determinants in health and oral diseases. The **aim** of this report is to review literature on determinants of oral diseases and apply the concepts to promoting oral health in the African countries in the African and Middle East region (AMER). Structural and proximal determinants of oral diseases are common to those affected by other no communicable diseases (NCDs).

Oral diseases are also heavily affected by issues of politics, poor health behaviors, underdeveloped health systems, and low oral health literacy. Wide-scale poverty exists in populations in the AMER. Oral health promotion and preventive oral health programs should therefore be integrated with those for general health and use the common risk factor approach (CRFA). Attempts should be made to improve the daily living conditions and reduce the incline of the social gradient. Oral health practitioners should use the CRFA when dealing with determinants of oral diseases and in the design of preventive oral health programs. The detrimental effects of the social determinants of health may be ameliorated by involving both the individual and community. Interventions in health promotion programs in the AMER need more research on the epidemiology of oral diseases and the role played by the social determinants of oral diseases, especially with regard to poverty. The high levels of poverty and low gross domestic product in most countries in the African region make it difficult to fund high-quality, affordable, accessible oral health services.

67. **Chillo O, Pagel J, Kleinert E, Caballero A, Mauer A, Hoecker J, Troidl K, Fischer S, Preissner K, Reichel C, Deindl E. Arteriogenesis: A natural arteriolar bypass in occlusive cardiovascular diseases.** ***The role of mast cells. 3rd MUHAS Scientific Conference*****, 2015.**

Background: Occlusive cardiovascular diseases are the leading course of death worldwide. Although surgical revascularization remains to be the treatment of choice for most patients, therapeutic promotion of arteriolar bypass (arteriogenesis) presents an alternative to patients in which surgical intervention is not possible. Aim: Here I present the novel concept of arteriogenesis, its milestones in the scientific world and the contribution of mast cells as new players in arteriogenesis.Methods: To investigate the role of mast cells in arteriogenesis, we apply different substances to influence mast cell stabilization (cromolyn), recruitment (diprotin A), degranulation (compound (C) 48/80), or both, recruitment and degranulation. Controls were treated with 0.9% saline. Perfusion of the distal hindlimb was measured using Laser Doppler Imaging at different time points before and after femoral ligation. Adductors and gastrocnemii were analysed by means of histology and immunohistochemistry. **Results:** Reperfusion was significantly improved following mast cell degranulation by either C48/80 alone or in combination with diprotin

A, whereas mast cell stabilization was associated with poor perfusion recovery. In vitro mast cells furthered proliferation of primary murine ECs and SMCs, and immunohistochemistry evidenced that mast cells contain FGF-2 and PDGF-BB. Mice treated with a combination of C48/80+DipA revealed increased leukocyte recruitment around growing collateral arteries, more proliferating vascular cells, significant increase in collateral luminal diameter and less distal tissue damage in comparison to the controls. FACS revealed increased macrophages and mast cell population following C48/80 treatment. Collaterals showed significantly increased levels of MCP-1 mRNA, and also higher MMP-9 activity in C48/80+DipA treated animals, whereas the TNF-□ serum level was significantly lower in cromolyn treated mice.**Conclusion:** Mast cells are central in arteriogenesis and their degranulation prevents distal ischemic damage.

68. **Chirande L, (et al.) "Determinants of stunting and severe stunting among under-fives in Tanzania: evidence from the 2010 cross-sectional household survey."** ***BMC pediatrics*****. 2015; 15(1): 1.**

Backgrounds: Stunting is one of the main public health problems in Tanzania. It is caused mainly by malnutrition among children aged less than 5 years. Identifying the determinants of stunting and severe stunting among such children would help public health planners to reshape and redesign new interventions to reduce this health hazard. This study aimed to identify factors associated with stunting and severe stunting among children aged less than five years in Tanzania. **Methods:** The sample is made up of 7324 children aged 0-59 months, from the Tanzania Demographic and Health Surveys 2010. Analysis in this study was restricted to children who lived with the respondent (women aged 15-49 years). Stunting and severe stunting were examined against a set of individual-, household- and community-level factors using simple and multiple logistic regression analyses. **Results:** The prevalence of stunting and severe stunting were 35.5 % [95 % Confidence interval (CI): 33.3-37.7] and 14.4 % (95 % CI: 12.9-16.1) for children aged 0-23 months and 41.6 % (95 % CI: 39.8-43.3) and 16.1 % (95 % CI: 14.8-17.5) for children aged 0-59 months, respectively. Multivariable analyses showed that the most consistent significant risk factors for stunted and severely-stunted children aged 0-23 and 0-59 months were: mothers with no schooling, male children, babies perceived to be of small or average size at birth by their mothers and unsafe sources of drinking water

[adjusted odds ratio (AOR) for stunted children aged 0-23 months = 1.37; 95 % CI: (1.07, 1.75)]; [AOR for severely stunted children aged 0-23 months = 1.50; 95 % CI: (1.05, 2.14)], [AOR for stunted children aged 0-59 months = 1.42; 95 % CI: (1.13, 1.79)] and [AOR for severely stunted children aged 0-59 months = 1.26; 95 % CI: (1.09, 1.46)]. **Conclusions:** Community-based interventions are needed to reduce the occurrence of stunting and severe stunting in Tanzania. These interventions should target mothers with low levels of education, male children, small- or average-size babies and households with unsafe drinking water.

69. **Chitama D, Frumence G, Urassa D, Mpembeni R, Mosha I, Chebeti J, LeFevre A, Killewo J. Incentives for motivating and retaining Community Health Workers (CHWs) and their relative importance; Insights from Discrete Choice Experiment in Morogoro rural-Tanzania**. ***3rd MUHAS Scientific Conference, 2015.***

Background: There is paucity of evidence for CHW'S incentive preferences and expectations or aspirations. The aim of this study was to explore measure and compare incentive preferences and aspirations among CHWs in Morogoro region in Tanzania. **Methods:** We used the Discrete Choice Experiment (DCE) approaches to elicit incentive preferences among CHW'S in Morogoro region in Tanzania. It involved the following steps; we explored the attributes (i.e. incentives) and levels using literature search and in-depth interviews- five attributes with two levels, we used fractional factorial approach to design the experiment considering both the analytical requirement and choice question format, we collected data using the designed DCE questionnaire with eight pair wise choice sets and we undertook statistical analysis using the multivariate ordinal regression and conditional logit regression to model respondents' choices as a function of the incentive scenarios. **Results:** The conditional logit regression results show that a guarantee or possibility of future paid employment is relatively important shaping decision for CHWs job uptake followed by personal growth and development, amount of financial compensation and provision of transport are relatively important incentive in motivating and retaining community health workers. Also, mixed multivariate ordinal regression incentive preference varies with the CHWs sub groups; male CHWs prefer personal growth and development incentives compared to female CHWs. Female CHWs prefer a guarantee or possibility of future paid employment compare to male CHWs.

Generally, Non financial incentives are more preferred than the financial incentives. **Conclusion:** The evidences of various aspirations and possible behaviors of community health workers and subgroups enables or inform policy-makers in crafting better policies for motivating and retention of the CHW where they are needed. CHWs, policy makers should contextualize the incentives by considering CHWs incentive preferences and expectations as incentive effectiveness is a function of individual preferences and aspirations.

70. **Chiwanga FS, Njelekela MA. Diabetic foot: prevalence, knowledge, and foot self-care practices among diabetic patients in Dar es Salaam, Tanzania–a cross-sectional study. *Journal of foot and ankle research*. 2015; 8(1):1.**

Background: At the time of diagnosis, more than 10 % of people with type 2 diabetes mellitus have one or two risk factors for foot ulceration and a lifetime risk of 15 %. Diabetic foot ulcers can be prevented through well-coordinated foot care services. The objective of this study was to determine knowledge of foot care and reported practice of foot self-care among diabetic patients with the aim of identifying and addressing barriers to preventing amputations among diabetic patients. **Methods:** Patients were randomly selected from all public diabetic clinics in Dar es Salaam. A questionnaire containing knowledge and foot care practice questions was administered to all study participants. A detailed foot examination was performed on all patients, with the results categorized according to the International Diabetes Federation foot risk categories. Statistics were performed using SPSS version 14. **Results:** Of 404 patients included in this study, 15 % had foot ulcers, 44 % had peripheral neuropathy, and 15 % had peripheral vascular disease. In multivariate analysis, peripheral neuropathy and insulin treatment were significantly associated with presence of foot ulcer. The mean knowledge score was 11.2 ± 6.4 out of a total possible score of 23. Low mean scores were associated with lack of formal education (8.3 ± 6.1), diabetes duration of < 5 years (10.2 ± 6.7) and not receiving advice on foot care (8.0 ± 6.1). Among the 404 patients, 48 % had received advice on foot care, and 27.5 % had their feet examined by a doctor at least once since their initial diagnosis. Foot self-care was significantly higher in patients who had received advice on foot care and in those whose feet had been examined by a doctor at least once. **Conclusions**: The prevalence of diabetic foot is high among patients attending

public clinics in Dar es Salaam. There is an urgent need to establish coordinated foot care services within the diabetic clinic to identify feet at risk, institute early management, and provide continuous foot care education to patients and health care providers.

71. **Chomi EN, Hansen K, Kiwara AD. "Household perceptions towards a redistributive policy across health insurance funds in Tanzania."*BMC health services research*. 2015; 15(1):1-2.**

Background: The Tanzanian health insurance system comprises multiple health insurance funds targeting different population groups but which operate in parallel, with no mechanisms for redistribution across the funds. Establishing such redistributive mechanisms requires public support, which is grounded on the level of solidarity within the country. The aim of this paper is to analyse the perceptions of CHF, NHIF and non-member households towards cross-subsidisation of the poor as an indication of the level of solidarity and acceptance of redistributive mechanisms. **Methods:** This study analyses data collected from a survey of 695 households relating to perceptions of household heads towards cross-subsidisation of the poor to enable them to access health services. Kruskal-Wallis test is used to compare perceptions by membership status. Generalized ordinal logistic regression models are used to identify factors associated with support for cross-subsidisation of the poor. **Results:** Compared to CHF and NHIF households, non-member households expressed the highest support for subsidised CHF membership for the poor. The odds of expressing support for subsidised CHF membership are higher for NHIF households and non-member households, households that are wealthier, whose household heads have lower education levels, and have sick members. The majority of households support a partial rather than fully subsidised CHF membership for the poor and there were no significant differences by membership status. The odds of expressing willingness to contribute towards subsidised CHF membership are higher for households that are wealthier, with young household heads and have confidence in scheme management. **Conclusion:** The majority may support a redistributive policy, but there are indications that this support and willingness to contribute to its achievement are influenced by the perceived benefits, amount of subsidy considered, and trust in scheme management. These present important issues for consideration when designing redistributive policie

72. **Chomi EN, Mujinja PG, Hansen K, Kiwara AD, Enemark U. Household perceptions towards a redistributive policy across health insurance funds in Tanzania. *BMC health services research.* 2015; 15(1):1.**

Background: The Tanzanian health insurance system comprises multiple health insurance funds targeting different population groups but which operate in parallel, with no mechanisms for redistribution across the funds. Establishing such redistributive mechanisms requires public support, which is grounded on the level of solidarity within the country. The aim of this paper is to analyse the perceptions of CHF, NHIF and non-member households towards cross-subsidisation of the poor as an indication of the level of solidarity and acceptance of redistributive mechanisms. **Methods**: This study analyses data collected from a survey of 695 households relating to perceptions of household heads towards cross-subsidisation of the poor to enable them to access health services. Kruskal-Wallis test is used to compare perceptions by membership status. Generalized ordinal logistic regression models are used to identify factors associated with support for cross-subsidisation of the poor. **Results:** Compared to CHF and NHIF households, non-member households expressed the highest support for subsidised CHF membership for the poor. The odds of expressing support for subsidised CHF membership are higher for NHIF households and non-member households, households that are wealthier, whose household heads have lower education levels, and have sick members. The majority of households support a partial rather than fully subsidised CHF membership for the poor and there were no significant differences by membership status. The odds of expressing willingness to contribute towards subsidised CHF membership are higher for households that are wealthier, with young household heads and have confidence in scheme management. **Conclusion:** The majority may support a redistributive policy, but there are indications that this support and willingness to contribute to its achievement are influenced by the perceived benefits, amount of subsidy considered, and trust in scheme management. These present important issues for consideration when designing redistributive policies.

73. **Christian B. Adherence to pmtct option b + and associated factors among HIV positive pregnant and breastfeeding women in Dar Es Salaam City, Tanzania.**

Master of Public Health, ***Dissertation 2015, Muhimbili University of Health and Allied Sciences.***

Background: PMTCT Option B+ has been postulated by several studies as the most efficient way of eliminating HIV transmission from mother to their infants by 90%. However for realization of its goal, adherence to ARVs has been shown to play a major role. Tanzania progress report on eMTCT of 2012 has shown more than 18% of children born to HIV infected women are infected with HIV due to poor adherence to treatment among other factors. There is limited information on level of adherence to Option B + services after its inception in Tanzania. In this line it is important to understand the extent of adherence to the new PMTCT strategy-Option B plus by the HIV positive women utilizing the services together with its associated factors. Objective: To assess adherence to PMTCT Option B+ and associated factors among HIV positive pregnant and breastfeeding women attending RCH clinics services in Dar es Salaam region. Materials and **Methods:** A cross sectional study was conducted among 443 HIV +ve women who are utilizing Option B + services across 9 health facilities. Ethical approval was sought from Muhimbili University of Health and Allied Sciences (MUHAS) ethical committee and informed consent from the study participants. Interviews using structured questionnaire was used for data collection. Summarization of data was done through descriptive statistics; Chi square was used to test for association between dependent and independent factors. Multiple logistic regressions were used to determine independent factors associated with adherence after controlling for confounding variables. The study was conducted between the months of April and May 2015. **Results:** Overall adherence to PMTCT Option B + services was at 75.8%. The factors associated with adherence were knowledge where women with high knowledge have higher odds of adherence compared to those with low knowledge, gravidity where women with 2nd pregnancy and above have higher odds of adherence compared to those with 1st pregnancy, adherence to appointment schedule where those with missed appointments have lower odds to adherence, breastfeeding women have lower odds to adherence compared to the pregnant women, and being in PMTCT services for longer duration shows lower odds of adherence. Overall level of knowledge on PMTCT services was high with 88.1% with moderate to high knowledge, only 52% of women had positive attitude towards the

services. **Conclusion:** These study findings have shown there is significant missed opportunity among the HIV +ve pregnant/ breastfeeding women who fail to adhere to the PMTCT services in Dar es salaam city. Level of knowledge, gravidity, adherence to appointment schedule and being pregnant/breastfeeding are associated with adherence to Option B plus services.

74. **Cook M, Howard BM, Yu A, Grey D, Hofmann PB, Moren AM, Mchembe M, Essajee A, Mndeme O, Peck J, Schecter WP. A Consortium Approach to Surgical Education in a Developing Country: Educational Needs Assessment. *JAMA surgery*. 2015; 150(11):1074-8.**

Importance: Surgical disease is a global health priority, and improving surgical care requires local capacity building. Single-institution partnerships and surgical missions are logistically limited. The Alliance for Global Clinical Training (hereafter the Alliance) is a consortium of US surgical departments that aims to provide continuous educational support at the Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania (MUHAS). To our knowledge, the Alliance is the first multi-institutional international surgical collaboration to be described in the literature. **Objective**: To assess if the Alliance is effectively responding to the educational needs of MUHAS and Muhimbili National Hospital surgeons. **Design, Setting, and Participants:** During an initial 13-month program (July 1, 2013, to August 31, 2014), faculty and resident teams from 3 US academic surgical programs rotated at MUHAS as physicians and teachers for 1 month each. To assess the value of the project, we administered anonymous surveys. **Main Outcomes and Measures:** Anonymous surveys were analyzed on a 5-point Likert-type scale. Free-text answers were analyzed for common themes. **Results:** During the study period, Alliance members were present at MUHAS for 8 months (1 month each). At the conclusion of the first year of collaboration, 15 MUHAS faculty and 22 MUHAS residents completed the survey. The following 6 areas of educational needs were identified: formal didactics, increased clinical mentorship, longer-term Alliance presence, equitable distribution of teaching time, improved coordination and language skills, and reciprocal exchange rotations at US hospitals. The MUHAS faculty and residents agreed that Alliance members contributed to improved patient care and resident education. **Conclusions and Relevance:** A multi-institutional international surgical partnership is

possible and leads to perceived improvements in patient care and resident learning. Alliance surgeons must continue to focus on training Tanzanian surgeons. Improving the volunteer surgeons' Swahili-language skills would be an asset. Future efforts should provide more teaching coverage, equitably distribute educational support among all MUHAS surgeons, and collaboratively develop a formal surgical curriculum.

75. **Cox S, Makani J, Ellins E, Kamala B, Walter G, Mtunguja S, Khalfan N, Kirkham F, Newton C, Halcox J, Prentice A. The Vascular Function Intervention Trial (VFIT) in Tanzanian children with sickle cell anemia: *A description. 3rd MUHAS Scientific Conference*, 2015.**

Introduction: Poor macro- and micro-nutritional status and reduced growth are common in children with sickle cell anemia (SCA). Reduced nutritional status at enrolment is associated with increased hospitalization rate in the Muhimbili Sickle Cohort (MSC) [1]. Tested interventions to improve nutritional status in SCA are lacking. Much of SCA-associated chronic disease may be caused by vascular damage from RBC breakdown, reduced arginine substrate for endothelial nitric oxide synthase (eNOS) and reduced nitric oxide (NO). In low-income settings, the relative cost and complexity of standard preventative therapies for SCA complications may limit their widespread implementation. Alternative and complementary, simple, safe and cost-effective interventions are required.**Objectives:** V-FIT is designed to evaluate as primary endpoints :(1) Effects of twice-daily home consumption of a micronutrient fortified ready-to-use supplementary food (RUSF) on growth and body composition. (2) Impact of hypothesised vascular support components: arginine, citrulline delivered within an RUSF (RUSFv) and daily chloroquine, on plasma arginine and NO-dependent endothelial function assessed by flow-mediated dilatation (FMD) in response to hyperemia (FMDmax).Methods: V-FIT is a double-blind, random-order cross-over trial (ISRCTN74331412/ NCT01718054). Eligiblity criteria include: HbSS children enrolled in the MSC, not receiving HU, aged 8-11.9 years at enrolment and living in Dar-es-Salaam. The study design is shown in Figure 1. RUSF was delivered via fortnightly home visits. Venepuncture, full blood picture and clinical chemistry panel were conducted at clinic visits. Plasma samples were archived (-80°C) within 1-2 hours of blood collection for amino acid analysis (Biochrom AAA 30, UK). Body composition was measured using

a Tanita BC418 segmental bio-impedance analyser. FMD of the brachial artery was assessed using ultrasound (Ultrasonix SonixTouch, 12Mz probe) using a method established in children [2]. Results: 119 out of targeted 120 children were enrolled during August-October 2012. 115 children attended all clinic visits with analysable FMD recordings and complete anthropometric data collected (Figure 2). The last child exited the study 26th February 2014. Compliance with the RUSF and chloroquine interventions is estimated at 80% (analyses ongoing). Baseline anthropometry, body composition and FMDmax are shown in Table 1. Baseline FMD results have been presented in detail elsewhere [Cox et al. ASH, New Orleans, USA, December 2013].Discussion: We have successfully completed a complex trial with the gold standard method of FMD assessing NO-mediated endothelial function as an end point. Compliance with the interventions and clinic visits was very high. Mean FMDmax was slightly lower than that observed in non-SCA British children of similar age (8.1% [SD3.4]) [2], but higher than reported in 21 older French children with SCA (5.6 +/- 0.2) [3] which might reflect deterioration of endothelial function with increasing age. V-FIT participants had poor nutritional status and low body fat at baseline.

76. Dalaba MA, Akweongo P, Aborigo RA, Saronga HP, Williams J, Aninanya GA, Sauerborn R, Loukanova S. Cost to households in treating maternal complications in northern Ghana: a cross sectional study. *BMC health services research*. 2015; 15(1):1.

Background: The cost of treating maternal complications has serious economic consequences to households and can hinder the utilization of maternal health care services at the health facilities. This study estimated the cost of maternal complications to women and their households in the Kassena-Nankana district of northern Ghana. **Methods:** We carried out a cross-sectional study between February and April 2014 in the Kassena-Nankana district. Out of a total of 296 women who were referred to the hospital for maternal complications from the health centre level, sixty of them were involved in the study. Socio-demographic data of respondents as well as direct and indirect costs involved in the management of the complications at the hospital were collected from the patient's perspective. Analysis was performed using STATA 11. **Results:** Out of the 60 respondents, 60% (36) of them suffered complications due to prolonged labour, 17% (10)

due to severe abdominal pain, 10% (6) due to anaemia/malaria and 7% (4) due to pre-eclampsia. Most of the women who had complications were primiparous and were between 21–25 years old. Transportation cost accounted for the largest cost, representing 32% of total cost of treatment. The median direct medical cost was US$8.68 per treatment, representing 44% of the total cost of treatment. Indirect costs accounted for the largest proportion of total cost (79%). Overall, the median expenditure by households on both direct and indirect costs per complication was US$32.03. Disaggregating costs by type of complication, costs ranged from a median of US$58.33 for pre-eclampsia to US$6.84 for haemorrrhage. The median number of days spent in the hospital was 2 days - five days for pre-eclampsia. About 33% (6) of households spent more than 5% of annual household expenditure and therefore faced catastrophic payments. **Conclusion:** Although maternal health services are free in Ghana, women still incur substantial costs when complications occur and face the risk of incurring catastrophic health expenditure.

77. **Dalaba MA, Akweongo P, Aborigo RA, Saronga HP, Williams J, Blank A, Kaltschmidt J, Sauerborn R, Loukanova S. Cost-effectiveness of clinical decision support system in improving maternal health care in Ghana. *PloS one*. 2015; 10(5):e0125920.**

Objective: This paper investigated the cost-effectiveness of a computer-assisted Clinical Decision Support System (CDSS) in the identification of maternal complications in Ghana. **Methods:** A cost-effectiveness analysis was performed in a before- and after-intervention study. Analysis was conducted from the provider's perspective. The intervention area was the Kassena- Nankana district where computer-assisted CDSS was used by midwives in maternal care in six selected health centres. Six selected health centers in the Builsa district served as the non-intervention group, where the normal Ghana Health Service activities were being carried out. **Results**: Computer-assisted CDSS increased the detection of pregnancy complications during antenatal care (ANC) in the intervention health centres (before-intervention= 9 /1,000 ANC attendance; after-intervention= 12/1,000 ANC attendance; P-value=0.010). In the intervention health centres, there was a decrease in the number of complications during labour by 1.1%, though the difference was not statistically significant (before-intervention =107/1,000 labour clients; after-intervention= 96/1,000 labour clients; P-value=0.305). Also, at the

intervention health centres, the average cost per pregnancy complication detected during ANC (cost –effectiveness ratio) decreased from US$17,017.58 (before-intervention) to US$15,207.5 (after-intervention). Incremental cost –effectiveness ratio (ICER) was estimated at US$1,142. Considering only additional costs (cost of computer-assisted CDSS), cost per pregnancy complication detected was US$285. **Conclusions**: Computer –assisted CDSS has the potential to identify complications during pregnancy and marginal reduction in labour complications. Implementing computer-assisted CDSS is more costly but more effective in the detection of pregnancy complications compared to routine maternal care, hence making the decision to implement CDSS very complex. Policy makers should however be guided by whether the additional benefit is worth the additional cost.

78. **Dalal S, Holmes MD, Laurence C, Bajunirwe F, Guwatudde D, Njelekela M, Adebamowo C, Nankya-Mutyoba J, Chiwanga FS, Volmink J, Ajayi I. Feasibility of a large cohort study in sub-Saharan Africa assessed through a four-country study.** ***Global health action*****. 2015; 8.**

Background: Large prospective epidemiologic studies are vital in determining disease etiology and forming national health policy. Yet, such studies do not exist in sub-Saharan Africa (SSA) notwithstanding the growing burden of chronic diseases. **Objective:** We explored the feasibility of establishing a large-scale multicountry prospective study at five sites in four sub-Saharan countries. **Design:** Based on country-specific considerations of feasibility, Nigeria enrolled health care professionals, South Africa and Tanzania enrolled teachers, and Uganda enrolled village residents at one rural and one periurban site each. All sites used a 6-month follow-up period but different approaches for data collection, namely standardized questionnaires filled out by participants or face-to-face interviews. **Results:** We enrolled 1415 participants from five sites (range 200–489) with a median age of 41 years. Approximately half had access to clean-burning cooking fuel and 70% to piped drinking water, yet 92% had access to a mobile phone. The prevalence of chronic diseases was 49% among 45- to 54-year-olds and was dominated by hypertension (21.7% overall) – ranging from 4.5 to 31.2% across sites – and a serious injury in the past 12 months (12.4% overall). About 80% of participants indicated willingness to provide blood samples. At 6-month follow-up, 68% completed a

questionnaire (45 to 96% across sites) with evidence that mobile phones were particularly useful. **Conclusions:** Our pilot study indicates that a large-scale prospective study in SSA is feasible, and the burden of chronic disease in SSA may already be substantial necessitating urgent etiologic research and primary prevention.

79. **Denison JA, Koole O, Tsui S, Menten J, Torpey K, Van Praag E, Mukadi YD, Colebunders R, Auld AF, Agolory S, Kaplan JE. Incomplete adherence among treatment-experienced adults on antiretroviral therapy in Tanzania, Uganda and Zambia. AIDS (London, England). 2015; 29(3):361.**

Objectives: To characterize antiretroviral therapy (ART) adherence across different programmes and examine the relationship between individual and programme characteristics and incomplete adherence among ART clients in sub-Saharan Africa. **Design:** A cross-sectional study. **Methods:** Systematically selected ART clients (≥18 years; on ART ≥6 months) attending 18 facilities in three countries (250 clients/facility) were interviewed. Client self-reports (3-day, 30-day, Case Index ≥48 consecutive hours of missed ART), healthcare provider estimates and the pharmacy medication possession ratio (MPR) were used to estimate ART adherence. Participants from two facilities per country underwent HIV RNA testing. Optimal adherence measures were selected on the basis of degree of association with concurrent HIV RNA dichotomized at less than or greater/equal to 1000 copies/ml. Multivariate regression analysis, adjusted for site-level clustering, assessed associations between incomplete adherence and individual and programme factors. **Results:** A total of 4489 participants were included, of whom 1498 underwent HIV RNA testing. No adherence ranged from 3.2% missing at least 48 consecutive hours to 40.1% having an MPR of less than 90%. The percentage with HIV RNA at least 1000 copies/ml ranged from 7.2 to 17.2% across study sites (mean = 9.9%). Having at least 48 consecutive hours of missed ART was the adherence measure most strongly related to virologic failure. Factors significantly related to incomplete adherence included visiting a traditional healer, screening positive for alcohol abuse, experiencing more HIV symptoms, having an ART regimen without nevirapine and greater levels of internalized stigma. **Conclusion:** Results support more in-depth investigations of the role of traditional healers, and the development of interventions to address alcohol abuse and internalized stigma among treatment-experienced adult ART patients.

80. **Desderius BM. Causes of Admission among HIV Infected Patients on Antiretroviral Therapy in the Medical Wards at Muhimbili National Hospital Master of Medicine (Internal Medicine)** ***Dissertations 2015. Muhimbili University of Health and allied sciences.***

Background: The introduction and wide use of anti-retroviral therapy (ART) for the treatment of HIV/AIDS has led to substantial reduction of morbidity and mortality among people with HIV disease including AIDS. However, HIV/AIDS still constitutes a major cause of hospital admission and mortality in Sub Saharan African countries. Identification of causes of morbidity and mortality among patients on ART in Tanzania has not been well documented. **Objective:** To determine the causes of morbidity and hospital outcome among patients on ART, at MNH medical wards. **Methods:** Patients on ART admitted into the MNH medical wards during the study period were interviewed by the principal investigator. Information collected included social-demographic characteristics, clinical history and information on anti-retroviral therapy. Physical examination, WHO clinical staging and appropriate investigations were performed including CD4 cell count. Diagnoses were based on clinical findings and investigations. Hospital outcome (death or discharge) were recorded. The cause of in-hospital mortality was ascertained by verbal autopsy. Univariate and multivariate logistic regression were used to determine the relationship between hospital outcome and the associated factors. **Results:** During the 7 months study period, 455 patients on ART were recruited into the study. The 455 patients made 494 admission episodes; hence thirty nine (7.9%) admissions were re-hospitalizations during the study period. We analyzed 455 patients at their first hospital admission. There was low use of OIs prophylaxis- INH (0.4%), Fluconazole (4.2%) and Cotrimoxazole (34%). The most frequent diagnoses at admission were anemia (77%), Electrolyte imbalance (44.4%), TB (27.9%), bacterial pneumonia (26.4), nephrotoxicity due to ART (16.3%), Hypertension (16.3), Bacterial meningitis (13%), Cryptococcus meningitis (11.4%), Malaria (11.4) Chronic kidney disease (8.1%), Diabetes mellitus (8.1%), Esophageal candidacies (7.9%), Urinary tract infection (5.9%), Cerebral toxoplasmosis (4.4%) and Kaposi's sarcoma (4.0%). Over 73% (333/455) of study subjects had WHO clinical stage IV disease and 53.2% (242/455) had CD4 count <200cells/ml. Overall 180/455 (39.6%) study patients died in the wards. CD4 count

<200cells/ml and WHO clinical stage 4 disease were strongly associated with mortality (p=000). **Conclusion:** Both infectious and non-infections conditions were common causes of hospitalization among patients on ART. There was high in hospital mortality especially among those with CD4 count <200cells/ml and WHO clinical stage disease. TB and Cryptococcus meningitis were the most common causes of mortality.

81. **Di Maria MV, Hsu HH, Al-Naami G, Gruenwald J, Kirby KS, Kirkham FJ, Cox S, Younoszai AK. Left ventricular rotational mechanics in Tanzanian children with sickle cell disease.** ***Journal of the American Society of Echocardiography*****. 2015; 28(3):340**-6.

Background: Sickle cell disease (SCD) is a common inherited hemoglobinopathy. Adults with SCD manifest both systolic and diastolic cardiac dysfunction, though the age of onset of dysfunction has not been defined. Left ventricular (LV) rotational mechanics have not been studied in children with SCD. The aim of this study was to investigate whether cardiac rotational mechanics differed between children with SCD and age-matched controls. **Methods:** Basal and apical LV short-axis images were acquired prospectively in 213 patients with SCD (mean age, 14.1 ± 2.6 years) and 49 controls (mean age, 13.3 ± 2.8 years) from the Muhimbili Sickle Cohort in Dar es Salaam, Tanzania. The magnitude of basal and apical rotation, net twist angle, torsion, and untwist rate were obtained by two-dimensional speckle-tracking. The timing of events was normalized to aortic valve closure. **Results:** Mean basal rotation was significantly lower in patients with SCD compared with controls (P = .012), although no difference was observed in apical rotation (P = .37). No statistically significant differences in torsion or net twist angle were detected. Rotation rate at the apex (P = .001) and base (P = .0004) were significantly slower in subjects with SCD compared with controls. Mean peak untwisting rate was also significantly slower in patients with SCD (P = .006). No associations were found between hemoglobin concentration and apical rotation, basal rotation, net twist, and torsion. **Conclusion**: This study demonstrates alterations in LV rotational mechanics in children with SCD, including lower basal rotation, peak differential twist, and untwist rate. These abnormalities denote subclinical changes in LV systolic and diastolic performance in children with SCD. Future work may reveal an association between rotational metrics and long-term patient outcomes.

82. **Donataccio MP, Puynirat E, Parapid B, et al. "In-hospital outcomes and long-term mortality according to sex and management strategy in acute myocardial infarction.Insights from the French ST-elevation and non-ST-elevation Myocardial Infarction (FAST-MI) 2005 Registry."*International journal of cardiology.* 2015; 201: 265-270.**

Background: The early mortality of acute myocardial infarction (AMI) has dramatically decreased in the recent past. Whether the previously reported sex disparities in use of invasive strategies (IS) persist and translate into differences in outcomes deserves to be examined. **Methods:** We used the data from a nationwide French prospective multicentre registry from 3,670 AMI patients (1155 women (31.5%), 2515 men (68.5%)) recruited in 223 centres in 2005 and followed-up for 5 years. We examined in-hospital outcomes and 5-year mortality in patients categorized according to sex and use of IS (i.e. coronary angiography during the hospitalization with a view to revascularization). **Results:** IS was less frequently used in women than in men (adjusted OR = 0.66; 95% CI: 0.52–0.85), regardless of the type of AMI, age group or risk category, while use of recommended medications was similar at 48 hours and discharge. In-hospital mortality did not differ according to sex, whatever the age group and use of an IS. At 5 years, overall and post-discharge mortality were similar in men and women. However, IS was associated with lower 5-year mortality in women (HR = 0.66; 95% CI: 0.51–0.86) as in men (HR = 0.48; 95% CI: 0.38–0.60) and there was no sex-strategy interaction. **Conclusions:** Invasive strategy remains less frequently used in women than in men, yet is associated with improved five-year survival irrespective of sex. Whether reducing the sex gap in its use would translate into a higher survival in women remains an open question.

83. **Donath D, Dida F, Mselle T. Screening for Impaired Glucose Tolerance and Type 2 Diabetes Mellitus in rural and urban settings in Kilombero district, Tanzania**. ***3rd MUHAS Scientific Conference, 2015.***

Background: The rapid increase in type 2 diabetes mellitus in urban centers' in sub Saharan Africa has been attributed to the changing lifestyles, obesity, lack of physical activities, and diet modifications. Studies carried out over 20 years ago revealed that the prevalence of Type 2 Diabetes Mellitus (T2DM) in rural settings was as low as 0.3%.

Whether the picture remains the same given the, major changes in demography and socioeconomics dynamics in the country is not clear. **Aim:** The overall goal of this study was to determine the prevalence ofImpaired Glucose Tolerance (IGT) and T2DM, and its associated risk factors in both rural and urban areas of Kilombero district, Tanzania. **Methods:** 150 participants aged 25 years and above from rural and urban areas of Kilombero District were studied. IGT and type 2 diabetes mellitus were determined by a fasting glucose test, and a two hour post-meal blood glucose levels determined. Body mass Index (BMI), physical activities, family history of diabetes, and life style such as food, smoking habit, and alcohol consumption were also recorded. **Results:** The prevalence of T2DM in both rural and urban areas of Kilombero district was 3%. Sex, age and alcohol were found to be risk factors. IGT and T2DM was significantly higher in males, it was found 3-4 times more common individuals aged 40 year above. Alcoholism was found in 100% and 66% of patients with IGT and T2DM respectively.**Conclusions:** Although the prevalence of diabetes mellitus in Kilombero district was low, the impaired glucose tolerance levels were significantly high suggesting that increase in the prevalence of diabetes in the future. Increased health education and access to screening is required for this area to facilitate early detection of DM patients.

84. **Ekta NL. Assessment of Implementation of Quality Assurance and Quality Control Programs in Selected Public and Private Clinical Laboratories in Dar es Salaam. Master of Science. (Medical Laboratory Technology - Microbiology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Use of clinical laboratory test results in diagnostic decision making has become an integral part of clinical medicine. More than 60-70% of the most important decisions on admission, in discharge, and medication are based on laboratory test results. With this high degree of influence, the reliability of laboratory testing and reporting is of utmost importance. Implementation of stringent quality assurance/quality control program is the key to ensure accuracy and reliability of lab results. Quality Assurance program includes pre-analytic, analytic and post analytic phases. **Objectives:** To assess the implementation of Quality Assurance (QA) and Quality Control (QC) programs and associated factors in clinical laboratories in public and private service delivery settings in Dar es Salaam. **Methodology:** This was a descriptive cross sectional study conducted

from March 2014 to June 2014. Random selection was made to check compliance of implementation of QA/QC standards in various clinical laboratories of different category i.e. tertiary (Group A multipurpose), and secondary (Group Bl and Group B2) in Dar es Salaam. The structured questiormaire was administered to collect data from each lab to evaluate the implementation of quality assurance &. Quality control settings. Questionnaire prepared on the basis of collecting the data from prefanalytic/post analytic phases of clinical lab which involved lab infrastructure, human resource, reagent & control reliability, specimen management, standard operating procedures, equipment validation, management, documentation, turnaround time, customer & worker satisfaction, total testing process, accuracy & precision, accreditation, good laboratory practice etc. Data gathered was analyzed differently according to the objectives using Microsoft Excel and Microsoft Word to generate the report. **Results:** A total of six different category clinical laboratories i.e. three public - Amana, Mwananyamala & Muhimbili National Hospital Central Pathology Laboratory (AMANA, MWANA, MNH CPL) & three private - Aga Khan Hospital, Regency Medical Centre & '1`MJ (AKH, RMC, TMJ) in Dar es Salaam were included in the study. In pre analytical phase all clinical laboratories studied complied well with QA standards for infra structure and specimen management and handling. In analytical phase, equipment validation and maintenance were complied well with QA standards in MNH CPL, AKH, RMC and TMJ. All laboratories studied complied well with QA standards for safety procedure. Pre analytical phase showed clerical staff shortage at AMANA and MWANA. Analytical phase showed problems including poor stock supply and poor equipment maintenance in public laboratories while post analytical phase indicated lack of documentation, poor management support, funding issues which were higher in public clinical compared to private clinical laboratories. QA/QC standard were adequately maintained in Group A multipurpose (AKH, MNH CPL) laboratories in all phases. Group Bl laboratories (RMC, T MJ) were needed more concentration to maintain QA/QC standard in post analytical phase while compliance of implementation of QA/QC standard in Group B2 laboratories (AMANA, MWANA) were needed a lot of management support and staff dedication to improve the standard in all phases. **Conclusion & Recommendations:** Quality standard parameters were well maintained in private health laboratories compared to public health

laboratories. Overall implementation of QA/QC programs for all phases was adequately maintained at AKH, RMC, TMJ and MNH CPL while at MWANA & AMANA all phases had huge shortfalls which need management concentration. Constant management support, adequate aiding, proper supervision, committed human resource, maintenance of lab quality system and global support are required to maintain the good lab quality standards in public and private health labs. It was concluded that higher category laboratories had maintained the QA./QC standard in all phases while compliance of implementation of QA/QC standard were decreasing in lower category laboratories due to factors associated with different phases.

85. **Elroby SA, (et al). "Substituent effects on the absorption and vibrational spectra of some 2-hydroxy Schiff bases: DFT/TDDFT, natural bond orbital and experimental study."** ***Journal of Structural Chemistry*****. 2015; 56(3):414-427.**

The electronic structure of salicylideneaniline (SA) and some of its derivatives are investigated both experimentally and theoretically. The equilibrium geometric structures of the studied compounds are determined at the B3LYP/6-311++G** level of theory. A set of 12 substituted SA derivatives is considered in the present work. The choice of these substituents aims to create a push-pull system on the SA basic structure which would shade light onto its photo physics. The electronic absorption spectra of SA are recorded in the UV-VIS region, in both polar and no polar solvents. Assignments of the observed electronic transitions are facilitated via time-dependent density functional theory (TDDFT) computations at the same level of theory. Electronic configurations contributing to each excited state are identified and the relevant MOs are characterized. The extent of delocalization and intramolecular charge transfer are estimated and discussed in terms of natural bond orbitals (NBO) analysis and second order perturbation interactions between donor and acceptor MOs. Solvent affects on the electronic absorption spectra are discussed in terms of the difference in polarizabilities of the ground and excited states. FTIR spectra of SA and its derivatives are measured in KBr platelets. Detailed vibrational assignments are given based on the calculated potential energy distributions. “IR marker bands” that characterize the SA framework are identified. The effect of substituents, the nature of the characteristic “marker bands”, and intensity quenching of some bands are discussed.

86. **Etheredge AJ, Premji Z, Gunaratna NS, Abioye AI, Aboud S, Duggan C, Mongi R, Meloney L, Spiegelman D, Roberts D, Hamer DH. Iron supplementation in iron-replete and nonanemic pregnant women in Tanzania: a randomized clinical trial. JAMA pediatrics. 2015; 169(10):947-55.**

Importance: Anemia is common in pregnancy and increases the risk of adverse outcomes. Iron deficiency is a leading cause of anemia in sub-Saharan Africa, and iron supplementation is the standard of care during pregnancy; however, recent trials among children have raised concerns regarding the safety of iron supplementation in malaria-endemic regions. There is limited evidence on the safety of iron supplementation during pregnancy in these areas. **Objective:** To evaluate the safety and efficacy of iron supplementation during pregnancy in a malaria-endemic region. **Design, Setting, and Participants:** We conducted a randomized, double-blind, placebo-controlled clinical trial among pregnant women presenting for antenatal care in Dar es Salaam, Tanzania, from September 28, 2010, through October 4, 2012. Iron-replete, nonanemic women were eligible if they were uninfected with human immunodeficiency virus, primigravidae or secundigravidae, and at or before 27 weeks of gestation. Screening of 21 316 women continued until the target enrollment of 1500 was reached. Analyses followed the intent-to-treat principle and included all randomized participants. **Interventions**: Participants were randomized to receive 60 mg of iron or placebo, returning every 4 weeks for standard prenatal care, including malaria screening, prophylaxis with the combination of sulfadoxine and pyrimethamine, and treatment, as needed. **Main Outcomes and Measures:** The primary outcomes were placental malaria, maternal hemoglobin level at delivery, and birth weight. **Results:** Among 1500 study participants (750 randomized for each group), 731 in iron group and 738 in placebo group had known birth outcomes and 493 in iron group and 510 in placebo group had placental samples included in the analysis. Maternal characteristics were similar at baseline in the iron and placebo groups, and 1354 (91.7%) used malaria control measures. The risk of placental malaria was not increased by maternal iron supplementation (relative risk [RR], 1.03; 95% CI, 0.65-1.65), and iron supplementation did not significantly affect birth weight (3155 vs 3137 g, P = .89). Compared with placebo, iron supplementation significantly improved the mean increase from baseline to delivery for hemoglobin (0.1 vs −0.7 g/dL, P < .001) and serum

ferritin (41.3 vs 11.3 μg/L, P < .001). Iron supplementation significantly decreased the risk of anemia at delivery by 40% (RR, 0.60; 95% CI, 0.51-0.71) but not severe anemia (RR, 0.68; 95% CI, 0.41-1.14). Iron supplementation significantly reduced the risk of maternal iron deficiency at delivery by 52% (RR, 0.48; 95% CI, 0.32-0.70) and the risk of iron deficiency anemia by 66% (RR, 0.34; 95% CI, 0.19-0.62). **Conclusions and Relevance:** Prenatal iron supplementation among iron-replete, nonanemic women was not associated with an increased risk of placental malaria or other adverse events in the context of good malaria control. Participants receiving supplementation had improved hematologic and iron status at delivery compared with the placebo group. These findings provide support for continued administration of iron during pregnancy in malaria-endemic regions.

87. **Eulambius M. Formulation development and optimization of taste masked generic fast dissolving zinc sulphate tablets. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences*.**

Background: Zinc sulphate monohydrate (ZnSO4•H2O) is indicated for the management of diarrhoea in children regardless of the cause. Although its solubility is good, it has a bad metallic taste thus posing a compliance challenge among children. In Tanzania there is only one Pharmaceutical industry manufacturing zinc sulphate tablets with only 44% of children in need of zinc sulphate tablets get access to. Aim: The aim of the present study was to develop and optimize a taste masked formulation of zinc sulphate fast disintegrating tablets. **Methodology:** Fast-dissolving tablets of zinc sulphate were prepared by direct-compression method after incorporating superdisintegrant sodium starch glycolate, polyvinyl pyrollidine cross linked (PVP-CL) and sodium croscarmelose in different concentrations. Nine formulations having superdisintegrants at different concentration levels were prepared to assess their efficiency and critical concentration level. Different types of evaluation parameters for tablets were used. Four batches consisting of varying composition of sodium saccharin and strawberry flavour were prepared to assess their effect in metallic taste masking and taste evaluation was done. Design expert software version 7 was used in formulation optimization where the optimal concentrations of binder and disintegrant were predicted from 13 batches formulated with their output quality variables determined. **Results:** Tablets containing PVP-CL showed

excellent disintegration time, friability and hardness compared to other formulations containing other superdisintegrants. Tablets contained 30mg/60mg (sodium saccharin/strawberry) had superior organoleptic properties, as compared to other formulations. 45% and 10% were the optimal concentration of microcrystalline cellulose and PVP-CL respectively with 100% predictability. Assay was xv within 95% to 105%, disintegration time was less than 60 seconds, and hardness was between 3.0kg/cm2 to 4.0 kg/cm2 which comply with official Pharmacopeia requirement. **Conclusion:** Therefore a taste masked generic formulation of 20 mg zinc sulphate fast dissolving tablets with accurate dose and palatable taste was successfully developed and optimized thus can be adopted by domestic pharmaceutical industry for commercial production. **Recommendations:** We recommend up scaling of this formulation to validate the formulation aspects. We also recommend adoption of this formulation to the local pharmaceutical industries for large scale production so as to improve availability of paediatric zinc sulphate tablets.

88. **Ezekiel M, Chitama D, Mlang'a E,"Gender equitable men's attitudes and beliefs to reduce HIV risk and gender-based violence in Tanzania."** ***Tanzania Journal of Health Research.*** **2015; 17(1).**

Background: While the prevalence of HIV in adults has slightly decreased in recent years, the variations in prevalence and risks to infection among men and women persist. These variations are partly explained by the social and structural conditions that predispose both sexes to HIV infection. Due to psychological and physiological conditions, literature indicates that HIV and gender based violence including intimate violence are related. This study aimed to assess how attitudes and beliefs respond to the spread of HIV and gender-based violence (GBV) in Tanzania. **Methods:** We conducted a quasi-experimental study with a sample of 1,620 adult women and men; with an approximate ratio of 1:2. A Gender Equitable Men's scale was slightly modified to capture various psychometric domains on HIV related gender norms and attitudes among women and men. **Results:** We found a substantial higher proportion of men having positive gender equitable norms and consistently positive attitudes in all four domains (GBV, reproductive health and disease prevention, sexuality and domestic life and child care) we assessed on. **Conclusion:** Results from this study may probably imply that now

men are taking positive roles in issues of domestic violence, reproductive health and disease prevention, sexuality and in domestic life and child care.

89. **Feldhaus I, Silverman M, LeFevre AE, (et al.) "Equally able, but unequally accepted: Gender differentials and experiences of community health volunteers promoting maternal, newborn, and child health in Morogoro Region, Tanzania."** ***International journal for equity in health.*** **2015; 14(1): 70.**

Background: Despite emerging qualitative evidence of gendered community health worker (CHW) experience, few quantitative studies examine CHW gender differentials. The launch of a maternal, newborn, and child health (MNCH)CHW cadre in Morogoro Region, Tanzania enlisting both males and females as CHWs, provides an opportunity toexamine potential gender differences in CHW knowledge, health promotion activities and client acceptability. **Methods:** All CHWs who received training from the Integrated MNCH Program between December 2012 and July 2013 in five districts were surveyed and information on health promotion activities undertaken drawn from theirregisters. CHW socio-demographic characteristics, knowledge, and health promotion activities were analyzed throughbi- and multivariate analyses. Composite scores generated across ten knowledge domains were used in orderedlogistic regression models to estimate relationships between knowledge scores and predictor variables. Thematicanalysis was also undertaken on 60 purposively sampled semi-structured interviews with CHWs, their supervisors, community leaders, and health committee members in 12 villages from three districts. **Results:** Of all CHWs trained, 97 % were interviewed (n = 228): 55 % male and 45 % female. No significant differenceswere observed in knowledge by gender after controlling for age, education, date of training, marital status, and assets.Differences in number of home visits and community health education meetings were also not significant by gender.With regards to acceptability, women were more likely to disclose pregnancies earlier to female CHWs, than maleCHWs. Men were more comfortable discussing sexual and reproductive concerns with male, than female CHWs. insome cases, CHW home visits were viewed as potentially being for ulterior or adulterous motives, so trust by familieshad to be built. Respondents reported that working as female–male pairs helped to address some of these dynamics. **Conclusions:** Male and female CHWs in this study have largely similar knowledge and health promotion outputs,

but Challenges in acceptance of CHW counseling for reproductive health and home visits by unaccompanied CHWs variedby gender. Programs that pair male and female CHWs may potentially overcome gender issues in CHW acceptance, especially if they change gender norms rather than solely accommodate gender preferences.

90. Fivawo C. Silent killer, silent health care: Managing hypertension in Tanzania: A Case study of Muhimbili Diabetic Clinic. *3rd MUHAS Scientific Conference, 2015.*

Background: It is still a widely held belief that low- and middle-income countries like Tanzania should focus on tackling infectious disease. However, this view ignores the rapid upsurge in chronic disease and associated disabilities and death. In reality, low-income countries like Tanzania have to learn to cope simultaneously with both old and new public health challenges. This is particularly important for the prevention of hypertension, a chronic disease referred to as the 'silent killer', since it afflicts people without necessarily showing any symptoms.**Methods:** The survey was designed to elicit information from patients diagnosed with hypertension at Muhimbili diabetic centre.Patient case s records tudies of the management of hypertensive patients at the Muhimbili Diabetic Centre in May–June 2013**. Aim:** To deterime and identify opportunities and and the need for nurse-led hypertension management and prevention. **Results:** The study found focuses on patients who were hypertensive on first arrival at the clinic and found to have poorly controlled hypertension. Evidence from the study also reveals that a large majority of these patients were diagnosed with hypertension only on arrival at the hospital level. Finally, while it is often assumed that hypertension is an illness of the elderly, a majority of these patients had been diagnosed while of working age and of child-rearing age. **Conclusion:** What implications can be drawn from this study to guide improvements in the management and prevention of hypertension in Tanzania? In this clinic, nurses collected excellent records of weight, height, and blood pressure on each visit. However, at present the nurses do not use this information to monitor and evaluate the progression of hypertension in their patients. It follows that there is an opportunity to delegate the task of managing hypertension to nurses. Achieving this will require new protocols for nurses and changes in supportive management. Beyond the clinic setting, the study suggests that improved screening,

monitoring, and hypertension prevention requires a shift to nurse management of this chronic disease at the primary care level.

91. **Fleming PJ, Mulawa M, Burke H, Shattuck D, Mndeme E, Attafuah J, Mbwambo J, Guest G. The role of relationship types on condom use among urban men with concurrent partners in Ghana and Tanzania. *AIDS care*. 2015; 27(4):466-72.**

Multiple concurrent partnerships are hypothesized to be important drivers of HIV transmission. Despite the demonstrated importance of relationship type (i.e., wife, girlfriend, casual partner, sex worker) on condom use, research on concurrency has not examined how different combinations of relationship types might affect condom use. We address this gap, using survey data from a sample of men from Ghana (GH: n = 807) and Tanzania (TZ: n = 800) who have at least three sexual partners in the past three months. We found that approximately two-thirds of men's reported relationships were classified as a girlfriend. Men were more likely to use a condom with a girlfriend if their other partner was a wife compared to if their other partner was a sex worker (GH: OR 3.10, 95% CI, 1.40, 6.86; TZ: OR 2.34, 95% CI 1.35, 4.06). These findings underscore the importance of considering relationship type when designing HIV prevention strategies in these settings.

92. **Forouzanfar MH, Alexander L, Anderson HR, Bachman VF, Biryukov S, Brauer M, Burnett R, Casey D, Coates MM, Cohen A, Delwiche K. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*. 2015; 386(10010):2287-323.**

Background: The Global Burden of Disease, Injuries, and Risk Factor study 2013 (GBD 2013) is the first of a series of annual updates of the GBD. Risk factor quantification, particularly of modifiable risk factors, can help to identify emerging threats to population health and opportunities for prevention. The GBD 2013 provides a timely opportunity to update the comparative risk assessment with new data for exposure, relative risks, and evidence on the appropriate counterfactual risk distribution. **Methods:** Attributable deaths, years of life lost, years lived with disability, and disability-adjusted life-years

(DALYs) have been estimated for 79 risks or clusters of risks using the GBD 2010 methods. Risk–outcome pairs meeting explicit evidence criteria were assessed for 188 countries for the period 1990–2013 by age and sex using three inputs: risk exposure, relative risks, and the theoretical minimum risk exposure level (TMREL). Risks are organized into a hierarchy with blocks of behavioural, environmental and occupational, and metabolic risks at the first level of the hierarchy. The next level in the hierarchy includes nine clusters of related risks and two individual risks, with more detail provided at levels 3 and 4 of the hierarchy. Compared with GBD 2010, six new risk factors have been added: hand washing practices, occupational exposure to trichloroethylene, childhood wasting, childhood stunting, unsafe sex, and low glomerular filtration rate. For most risks, data for exposure were synthesized with a Bayesian meta-regression method, DisMod-MR 2.0, or spatial-temporal Gaussian process regression. Relative risks were based on meta-regressions of published cohort and intervention studies. Attributable burden for clusters of risks and all risks combined took into account evidence on the mediation of some risks such as high body-mass index (BMI) through other risks such as high systolic blood pressure and high cholesterol. **Findings:** All risks combined account for 57·2% (95% uncertainty interval [UI] 55·8–58·5) of deaths and 41·6% (40·1–43·0) of DALYs. Risks quantified account for 87·9% (86·5–89·3) of cardiovascular disease DALYs, ranging to a low of 0% for neonatal disorders and neglected tropical diseases and malaria. In terms of global DALYs in 2013, six risks or clusters of risks each caused more than 5% of DALYs: dietary risks accounting for 11·3 million deaths and 241·4 million DALYs, high systolic blood pressure for 10·4 million deaths and 208·1 million DALYs, child and maternal malnutrition for 1·7 million deaths and 176·9 million DALYs, tobacco smoke for 6·1 million deaths and 143·5 million DALYs, air pollution for 5·5 million deaths and 141·5 million DALYs, and high BMI for 4·4 million deaths and 134·0 million DALYs. Risk factor patterns vary across regions and countries and with time. In sub-Saharan Africa, the leading risk factors are child and maternal malnutrition, unsafe sex, and unsafe water, sanitation, and hand washing. In women, in nearly all countries in the Americas, North Africa, and the Middle East, and in many other high-income countries, high BMI is the leading risk factor, with high systolic blood pressure as the leading risk in most of Central and Eastern Europe and south and East

Asia. For men, high systolic blood pressure or tobacco use are the leading risks in nearly all high-income countries, in north Africa and the Middle East, Europe, and Asia. For men and women, unsafe sex is the leading risk in a corridor from Kenya to South Africa. **Interpretation:** Behavioural, environmental and occupational, and metabolic risks can explain half of global mortality and more than one-third of global DALYs providing many opportunities for prevention. Of the larger risks, the attributable burden of high BMI has increased in the past 23 years. In view of the prominence of behavioural risk factors, behavioural and social science research on interventions for these risks should be strengthened. Many prevention and primary care policy options are available now to act on key risks.

93. **Frank V Perceived Needs of Parents Caring Critically Ill Children Admitted At Kilimanjar0 Christian. Master of Science (Critical Care and Trauma)** ***Dissertation 2015. Muhimbili University 0f Health and Allied Sciences.***

Background: Parents have a significant responsibility in the care of their critically ill children who are admitted in the Pediatric Intensive Care Unit (PICU) and hospital settings. Parents staying with their critically ill children in the hospital settings have particular needs that should be acknowledged and responded to by Nurses. When needs of parents are not identified and addressed, it may bring significant stress and anxiety to parents. **Objectives:** The overall aim of this study was to explore the perceived needs of parents caring hospitalized critically ill children as perceived by parents and nurses providing care to hospitalized critically ill children at Kilimanjaro Christian Medical Centre hospital. **Methodology**: The study uses a descriptive qualitative research method. Participants were Parent with critically ill children who were admitted at KCMC and Nurses caring for the critically ill children. Five focused group discussion were conducted with nurses and parents who were purposively selected. Qualitative content analysis guided the analysis of data. **Results:** Four themes emerged from the perception of parents' and nurses' about perceived needs of parents caring for hospitalized critically ill children. The results indicated that comprehensive information on the condition and prognosis of children conditions from nurses was perceived by parents to be of paramount. Involving parent in direct patient care activities decreased their feeling of powerless and was most meaningful to them. Nurses reported that while they perceive

parent participation in care as valuable, but nurses feel uncomfortable to provide care to critically ill children in presence of parents. Parents though that family visit encourages, raises their spirits and gives them a sense of love and belongingness. In contrast, hospital policy of restricted visiting time decreased family interaction and feeling of support. Participants reported that psychosocial, physical and spiritual needs are an important factor in assisting them in coping during time of stress. **Conclusion:** The study provided an in-depth understanding of the parental needs by having hospitalized critically ill children in Intensive Care, bum ward and pediatric ward and focused on a range of unmet needs, particularly those related to routine care, culture and religion. The nurses who care for critically ill children needs to improve interventions by identifying, prioritizing and incorporating parental needs in the plan of daily nursing care and this will enable the nurses to assist the parents in the recognition and fulfillment of needs that have less perceived importance.

94. Fredrick FF, Ruggajo PJ, Basu G, Svarstad E, Langeland N. Global collaboration bears fruit: Tanzania report. *Kidney international*. 2015; 88(6):1211-4.

95. **Frumence G , Chebet J, Callaghan-Koru J, Mosha I, Chitama D, Winch P. Assessing Partner organizations' Investments in health: experience from Morogoro region, Tanzania. *3rd MUHAS Scientific Conference,* 2015.**

Background: Health is one of the sectors receiving abundant foreign aid from multiple partner organizations to support the implementation of a broad range of interventions aiming at promoting population health in developing countries including Tanzania. **Objective:** This paper aims at explaining why partners' investments in health are what they are and propose a framework for making better decisions about health investments. **Methods:** We adopted a case study of a partner investment assessment utilizing qualitative data collected as part of an evaluation project on maternal and child health programs in Morogoro Region. Key informants from all partners working in the areas of maternal, newborn and child health as well as HIV were interviewed and thematic analysis was conducted to analyze data.**Results:** We found that decisions made by most partners' organizations on where to invest were based on recipient and donor organizational models. Specifically the decisions were based on government directives

such as, the need to provide health services to vulnerable populations; the need to contribute towards alleviation of disease burdens and donor organizations' interests including humanitarian concerns. Poor coordination of donor organizations and their investments may undermine the benefits to target populations and aid recipients both at national and district levels. This weakness poses a major challenge on partner investments in health leading to duplication of efforts and unchanging disease burdens. **Conclusion:** We propose a framework that combines donor interests and needs with those of beneficiaries at national and district levels in order to avoid duplication of efforts in one area. An effective coordination mechanism should be put in place and forums established to discuss the interests and priorities of each involved partner so as to harmonize them and facilitate the implementation of donor funded investments in the recipient countries.

96. **Frumence G, Nyamhanga M, Mwangu M. "The Role of Council Health Management Team in the Improvement of Health Services Quality: The Case of Kinondoni and Ilala Municipalities in Dar es Salaam, Tanzania."** ***Tanzania Journal of Development Studies.*** **2015; 13(1-2): 83-95.**

To date, there are no many systematic studies that determine the role of participatory organs in improving the provision of quality health services despite the fact that it is now more than two decades since Tanzania initiated decentralization. In recognition of this gap, and given the observed public concerns about the quality of health services provision, this study sought to understand and address the role of council health management teams (CHMTs) in improving the provision of quality health care in the country using the study cases of two municipalities of Dar es Salaam, i.e., Kinondoni and Ilala. The study employed a triangulation of methods—quantitative, qualitative and documentary reviews—to collect data. The findings show that factors behind the declining provision of quality health services included the shortage of human resources, poor working equipment, lack of commitment on the part of members of the CHMT, lack of effective CHMTs' supervision, as well as the lack of good networking and collaboration with other stakeholders. The study recommends that policy makers and planners in the health sector and local government authorities should ensure that CHMTs have quality assurance as their primary goal. Also, CHMT members should be held

accountable for poor quality of services in their respective areas. In addition, local government authorities should allocate adequate resources for participatory organs to execute their functions as well as improving working conditions and motivation for health professionals.

97. **Fungo C. Female sex workers' disclosure when seeking hiv prevention services in dar es salaam, Tanzania. Master of Public Health,** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

Background: Tanzania has made efforts trying to reach key population including female sex workers with HIV prevention and other health services. This is because female sex workers (FSWs) continue to bear high burden of HIV (31.4%) and may harbor up to four sexually transmitted infections (STIs). However, the challenge is that the key populations including FSWs do not disclose their identities as sex workers when they seek HIV preventive services at the health facilities. The reasons are partly because they are afraid of lack of confidentiality and possibility of being discriminated by communities and health providers. Similarly, studies done elsewhere have reported that (62%) of FSWs did not disclose their identities as sex workers when they seek HIV preventive services. The reasons were lack of confidentiality and discrimination by health providers. **Objectives:** The main objective of this study was to determine reasons that influenced the female sex workers to self-disclose when they seek HIV prevention services at health facilities in Dar es Salaam **Methods:** A cross sectional study was conducted among 311 FSWs in Temeke Municipality, Dar es Salaam region between February and March, 2015. The study applied respondent driven sampling method to recruit FSWs then collected data through the interviews using structured questionnaires with closed and open-ended questions. **Results**: Of 311 FSW respondents, the majority were single, 73.0%. Nearly forty nine percent (48.9%) of FSW attended or completed primary level of education. 72.7%, FSW were Muslims. The study also reported 79.4% (247/ 311) FSW who depended on sex work as their main source of income. Amongst FSW interviewed, 58.9 % reported to have disclosed their identities as sex workers when they seek HIV preventive services at the health facilities in Temeke Municipality, Dar es Salaam. The reasons that influenced FSWs to self-disclose at the health facilities included: affordability of health services to sex workers, assurance of confidentiality by health

provider, expectation of quality services, being counseled in health programs about the importance of disclosure and decision by female sex workers, 52%, 41%, 13%, 12% and 5%, respectively. The findings showed that FSWs seek HIV preventive services at Government health facilities were eight-fold more likely to disclose compared to those who seek the services at private health facilities, 79.6%, 10.3%, respectively (AOR = 0.06, 95% CI = 0.02 - 0.20); $p < 0.001$) and the results were statistically significant. **Conclusions:** About a half of female sex workers did not disclose their identities as sex workers when they seek HIV preventive services at health facilities in Dar es Salaam in spite of incentives like; substituted costs that made health services affordable and confidentiality of health care providers. **Recommendations:** The study recommends comprehensive health education and empowerment interventions to FSW in order to improve percentage of FSW disclosing their identities at health facilities. Further, the study recommends promotion and provision of acceptable (stigma free & non-judgmental), accessible, affordable and quality health services at the health services.

98. **Gadalla NB. (et al.) "Alternatively spliced transcripts and novel pseudogenes of the Plasmodium falciparum resistance-associated locus pfcrt detected in East African malaria patients."** ***Journal of Antimicrobial Chemotherapy.*****2015. 70(1): 116-123.**

    Objectives: Polymorphisms in the lysosomal transporter encoded by the *pfcrt* gene directly impact on *Plasmodium falciparum* susceptibility to aminoquinolines. The Lys76Thr mutation is the critical change conferring chloroquine resistance *in vitro* and *in vivo*, but always occurs with additional non-synonymous changes in the *pfcrt* coding sequence. We sought to better describe *pfcrt* polymorphisms distal to codon 76. **Methods:** Small-volume samples (≤500 μL) of parasite-infected blood collected directly from malaria patients presenting for treatment in Sudan and Tanzania were immediately preserved for RNA extraction. The *pfcrt* locus was amplified from cDNA preparations by nested PCR and sequenced directly to derive full-length mRNA sequences. **Results:** In one of two sites in Sudan, two patients were found with an unorthodox spliced form of *pfcrt* mRNA in which two exons were skipped, but it was not possible to test for the presence of the putative protein products of these aberrant transcripts. Genomic DNA sequencing from dried blood spots collected in parallel confirmed the presence of spliced *pfcrt* pseudogenes in a minority of parasite isolates. Full-length cDNA from

conventionally spliced mRNA molecules in all study sites demonstrated the existence of a variety of *pfcrt* haplotypes in East Africa, and thus provides evidence of intragenic recombination. **Conclusions:** The presence of pseudogenes, although unlikely to have any direct public health impact, may confound results obtained from simple genotyping methods that consider only codon 76 and the adjacent residues of *pfcrt*.

99. **Gadalla NB, Tavera G, Mu J, Kabyemela ER, Fried M, Duffy PE, Sá JM, Wellems TE. Prevalence of Plasmodium falciparum anti-malarial resistance-associated polymorphisms in pfcrt, pfmdr1 and pfnhe1 in Muheza, Tanzania, prior to introduction of artemisinin combination therapy. *Malaria journal*. 2015; 14(1):1.**

Background: A report of the chloroquine and amodiaquine resistance pfcrt-SVMNT haplotype in Tanzania raises concern about high-level resistance to the artesunate-amodiaquine combination treatment widely employed in Africa. Mutations in the pfmdr1 multi-drug resistance gene may also be associated with resistance, and a highly polymorphic microsatellite (ms-4760) of the pfnhe1 gene involved in quinine susceptibility has not been surveyed in Tanzania. **Methods:** A total of 234 samples collected between 2003 – 2006 from an observational birth cohort of young children in Muheza, Tanzania were analysed. In these children, 141 cases of P. falciparum infections were treated with AQ and 93 episodes were treated with QN. Haplotypes of pfcrt and pfmdr1 were determined by a Taqman assay, and ms-4760 repeats in pfnhe1 were assessed by nested PCR amplification and direct sequencing. Parasite population diversity was evaluated using microsatellite markers on five different chromosomes. **Results:** The pfcrt-CVIET haplotype was present alone in 93.6% (219/234) of the samples over the study period; the wild-type chloroquine- and amodiaquine-sensitive haplotype pfcrt-CVMNK was present in 4.3% (10/234) of the samples; and both haplotypes were present in 2.1% (5/234) of the samples. No significant change in wild-type pfcrt-CVMNK prevalence was evident over the 4-year period of the study. The pfcrt-SVMNT haplotype associated with high-level amodiaquine resistance was not detected in this study. The pfmdr1 locus was genotyped in 178 of these samples. The pfmdr1-YYNY haplotype predominated in 67.4% (120/178) of infections and was significantly associated with the pfcrt-CVIET haplotype. All samples carried the wild-type pfmdr1-N1042 codon. The ms-4760 repeat on pfnhe1 locus displayed 12 distinct

haplotypes with ms-4760-1 predominating in the population. Analysis of these haplotypes showed no association of a particular haplotype with quinine treatment outcome. **Conclusion:** The pfcrt-CVIET chloroquine resistance haplotype dominated in the collection of P. falciparum samples from Muheza. The pfcrt-SVMNT haplotype, which threatens the efficacy of amodiaquine and was reported in the same time period from Korogwe, Tanzania, 40 Km from Muheza, was not detected. Relative low prevalence of pfcrt-SVMNT in Africa may result from genetic or other factors rendering P. falciparum less supportive of this haplotype than in South America or other regions.

100. **Gamaliel J, Aboud S. Utilization of the Early Infant Diagnosis of HIV Infection and Associated Factors in Coast Region, Tanzania. *3rd MUHAS Scientific Conference, 2015.***

Background: Early infant diagnosis (EID) of HIV infection provides the opportunity for identifying, follow up and testing for HIV-exposed infants. In Tanzania, despite availability of EID HIV infection testing services, many children are left undiagnosed or diagnosed late that resulted to increased childhood HIV related mortalities. **Aims:** To determine magnitude and factors influencing utilization of EID among HIV-exposed infants. **Methodology**: A cross-sectional study was conducted in Kibaha and Bagamoyo districts in Coast region involving all HIV-exposed infants aged between 4 weeks to 18 months born live to HIV-infected mothers. Data were collected through interviewing mothers/guardians of HEI using a structured questionnaire, CTC cards were used to countercheck linkage to CTC. A checklist was used to collect data specific for health facilities through interview of health care providers and observation. Data were entered into Epidata version 3.1 analysed by Stata software 12.1. Analysis for predictors was done using univariate and multivariate logistic regression where p value of <0.05 was considered as statistically significant. **Results**: A total of 238 parents/guardians of HIV-exposed infants/children from five (5) facilities in Coast region were involved in the study. The HIV testing among HIV-exposed infants within the health care facility was 87%. The prevalence of HIV infection among HIV-exposed infants was 13%. All facilities had facilities for EID of HIV, trained human resources and a system of identification of HIV-exposed infants. In univariate analysis, early HIV testing during pregnancy, PMTCT ARV prophylaxis, disclosure of HIV status, enrollment to CTC, and

frequent attendance to EID services, co-trimoxazole prophylaxis and exclusive breast feeding were found to be significant predictors for testing of HIV-exposed infants. In multivariate analysis, monthly attendance to HIV EID clinic was independent significant predictor (AOR 2100, 95% CI, 3.3 -1314904 p<0.05) for testing of HIV-exposed infants.**Conclusions**: Monthly attendance to HIV EID clinic predicted significantly the testing among HIV-exposed infants.

101. **Ganyaka SK. Comparison of Factors and Pregnancy Outcomes among Women With and Without Abruption Placenta at Muhimbili National Hospital, Dar es Salaam, Tanzania Master of Medicine (Obstetrics and Gynecology)** ***Dissertations 2015. Muhimbili University of Health and Allied Science.***

Background: Abruption placenta is one of the obstetric emergencies and a leading cause of vaginal bleeding and deadly maternal and fetal complications. The etiology of abruption placenta is still unclear; however some studies have identified risk factors including advanced maternal age, hypertension in pregnancy, premature rupture of membrane, early vaginal bleeding in current pregnancy, smoking, alcohol, high parity and previous history of abruption placenta and previous caesarian section. **Main objective:** This study aimed at comparing factors and pregnancy outcome for women with abruption placenta and those without at tertiary setting in Muhimbili National Hospital. **Methodology:** Unmatched case-control study was carried out at the Department of Obstetrics and Gynecology among 500 deliveries (125 cases and 375 controls) from June 2014 to December 2014. Patients (cases) with placental abruption and controls after 28 weeks of gestation were compared. Descriptive statistics were calculated using SPSS; then multiple logistic regressions were done to identify and quantify the factors associated with abruption placenta. **Results:** A total of 5, 715 deliveries were recorded during the study period with the proportion of abruption placenta being 2.2%.Clients with abruption placenta were 3.5 times more likely to have a history of hypertension in the current pregnancy (AOR 3.5, 95% CI: 2.0-6.1) and four times more likely of having a family history of hypertension (AOR: 4.1, 95% CI 2.4-6.9) compared to controls. Abruption placenta was 10 times more likely to occur among pregnant women with history of early vaginal bleeding in the current pregnancy (AOR: 9.9, 95% CI 5.2-18.9) and nearly three times among those with history of Premature

Rupture Of Membrane (AOR: 2.7, 95% CI 1.2-6.0) compared to controls. Previous caesarian section, alcohol use, smoking during pregnancy and parity were not significantly associated with abruption placenta in this study after adjustment. Mothers whose pregnancy was complicated by abruption placenta delivered at low gestation age and had postpartum hemorrhage. With regard to fetal outcomes; most babies were still born and had low birth weight. **Conclusion:** In this study maternal hypertension, vaginal bleeding in early pregnancy and premature rupture of membranes were identified as predictors for abruption placenta in MNH setting. Still birth and low birth weight were found to be high in women whose pregnancy was complicated by abruption placenta. Therefore, early identification of possible factors will reduce significantly this mortality. **Recommendation:** The identified risk factors for abruption placenta should be well addressed and managed early in the antenatal clinics to avoid women developing severe abruption placenta. Further longitudinal studies are needed to identify other local associated factors and biochemical markers of abruption placenta in our set up.

102. Gcora N, Gopeni A, Tuswa M, Lwoga ET, Chigona W. The benefits and challenges of using Telecentres in rural areas: Case of women in Eastern Cape Province. Steyn J, Van Belle JP. Beyond development. Time for a new ICT4D paradigm? Proceedings of the 9th *IDIA conference, IDIA2015, Nungwi, Zanzibar*. (eds.) 2015.

The advent of Information and Communication Technology (ICT) facilities such as Telecentres have brought new ways to assist people to have access digital technologies that have the potential to aid communities, economic, educational and social development. This is particularly important in rural areas where the citizens are less likely to have their own technologies. However, this great potential has not been fully realized in the developing countries. In particular, women in rural areas seem to benefit the least from such interventions; this is due to a myriad of social factors. This paper seeks to help address the barriers affecting women to use and adopt the Telecentres in rural areas. The aim of the paper is to identify the challenges women face in using Telecentres and the benefits those who use gain from using the centres. The research employed a qualitative research approach and an interpretivism paradigm where the reality is viewed as a social construction. Data for the study comes from both secondary sources and semi structured interviews. The interviews were conducted with women in

two Eastern Cape Rural towns of Cala and Centane. The study concludes that through awareness; improvement of ICT capacity (infrastructure and literacy) and women empowerment in terms of ICT use Telecentres can be successfully integrated in rural communities. The findings of the study may be used by those seeking to improve the impact of Telecentres especially on women.

103. Geoffrey A, Ahmed A, Said A. "Methicillin-resistant staphylococcus aureus (MRSA) colonization among Intensive Care Unit (ICU) patients and health care workers at Muhimbili national hospital, Dar Es Salaam, Tanzania, 2012." ***The Pan African medical journal.*** **2015; 21.**

Introduction: Methicillin-resistant Staphylococcus aureus (MRSA) has been recognized as important nosocomial pathogens worldwide. S aureus may induce clinically manifested diseases, or the host may remain completely asymptomatic. **Methods:** A cross-sectional hospital-based study was conducted from October 2012 to March 2013 in two ICUs at MNH. Admitted patients and health care workers were enrolled in the study. Interviewer administered questionnaires; patient history forms, observation charts and case report forms were used to collect data. Swabs (nostrils, axillary or wounds) were collected. MRSA were screened and confirmed using cefoxitin, oxacillin discs and oxacillin screen agar. Antibiotic susceptibility was performed using Kirby-Bauer disk diffusion method. The risk factors for MRSA were determined using the logistic regression analysis and a p - value of <0.05 was considered as statistically significant. **Results:** Of the 169 patients and 47 health workers who were recruited, the mean age was 43.4 years ± SD 15.3 and 37.7 years ± (SD) 11.44 respectively. Among the patients male contributed 108 (63.9%) while in health worker majority 39(83%) were females. The prevalence of MRSA colonization among patients and health care workers was 11.83% and 2.1% respectively. All (21) MRSA isolates were highly resistant to penicillin and erythromycin, and 17 (85.7%) were highly sensitive to vancomycin. Being male (AOR 6.74, 95% CI 1.31-34.76), history of sickness in past year (AOR 4.89, 95% CI 1.82-13.12), being sick for more 3 times (AOR 8.91, 95% CI 2.32-34.20), being diabetic (AOR 4.87, 95% CI 1.55-15.36) and illicit drug use (AOR 10.18, 95%CI 1.36-76.52) were found to be independently associated with MRSA colonization. **Conclusion:** A study identified a high prevalence of MRSA colonization among patients admitted in the

ICU. MRSA isolates were highly resistant to penicillin and erythromycin. History of illegal drug use was highly associated with MRSA colonization.

104. **Geofrey AS. Behavior rating and factors associated among children attending muhas dental clinic in Dar-es-salaam, Tanzania. Master of MSc (Tropical Disease Control)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Several behavior rating scales are used by pediatric dentists to assess and evaluate the behavior of a child in dental setting. Rating child behavior will help to evaluate behavior management techniques to be employed during dental treatment and prepare child patients for more positive experiences. One of these scales; Frankl Behavior rating scale (FBRS) is commonly used. It consists of 4 behavior categories; (definitely negative, negative, positive and definitely positive). Aim: To assess children's behavior in a dental setting according to Frankl Behavior Rating Scale and determine the factors associated to their displayed behaviors among children attended at MUHAS pediatrics dental clinic in Dar-Es-salaam, Tanzania. Subjects and **Methods:** This was a cross sectional hospital based study. Data collection utilized a structured questionnaire to inquire on the child and parent's social demographics as well as factors associated with the behavior of the child during treatment (diseases status, cadre of attending dentist and child socialization practices). Data was also collected through observation and rating the child's behavior according to FBRS and clinical examination for dental caries, periodontal and orthodontic conditions. Data was analyzed using SPSS version 20.0. Frequency distributions were generated and cross tabulations done with chi-square tests used to test for significant associations. The level of statistical significance was set at $p<0.05$. Results: 222 children aged 3-12 years participated in the study, 51.4% of whom were males. Majority of the children were rated positive; 37.4% on entering the clinic, 49.1% during clinical examination and 51.8% during dental treatment. The only child socio-demographic factor that reveled statistical significant association with child's behavior in dental setting were ages and the schooling status, where 55.7% of primary school was rated as positive compared to 36.5% of nursery school attendees. On the other hand all dental environmental factors studied reveled statistical significant association with child's behavior in dental setting, likewise dental caries in primary dentition and generalized plaque had a significant association with child's behavior while no statistical

significant association in child's behavior with or without caries in permanent dentition and those with or without calculus. **Conclusion:** Majority of children examined fall in the FBRS category 3 (positive), age of the child, schooling status and all dental environmental factors studied were significantly related to the behavior of the child. Similarly caries in primary dentition and generalized plaque have a significant role in child's behavior.

105. **Gogola KA. Community participation in the implementation of community health fund. Case study of Kilindi District Council, Tanga Region, Tanzania. Master of Arts (Health Policy and Management*) Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Introduction: Overall, Community participation in health systems has gained importance all over the world, particularly in resource poor settings where governments failed to provide adequate public sector services for their citizens. Implementation of Community Health Fund (CHF) for the provision of quality services requires a broad spectrum of multidisciplinary actions and the community must be involved fully in order to sustain and strengthen the community health fund. In Tanzania community participation has emerged as an important dimension in health care planning and decision making within decentralized district health care systems across the country. Although various studies were conducted on implementation in CHF, little is done on the participation of community in the management of CHF. **Objective of the study:** The study aimed at exploring community participation in the implementation of the community health fund. **Methodology:** The study adopted a case study design which employed qualitative methods in data collection. A qualitative method was chosen in order to explore participant's views on community participation in the implementation of CHF. Content analysis was used to analyze data. To select respondents, a purposive sampling was used. A total of 45 respondents were invited to participate in this study. Three data collection techniques were used to collect information including documents review, in- depth interview and focused group discussions. **Results:** The findings of the study shows that the community was not fully involved in the mobilization, priority setting, mechanism of collecting people's opinion and provision of feedback. Community involvement in the implementation of CHF still reamin a challenge. **Conclusion and Recommendations:** A

concerted effort therefore should be put in by both the council and community in order to make sure that community members are fully involved in the implementation of CHF.

106. **Greenspan JA, McMahon SA, Chebet J, Mpunga M, Urassa D, Winch PJ. Sources of community health worker motivation: a qualitative study in Morogoro Region, Tanzania. *Hum Resour Health*. 2015; *11*(1): 52.**

Background: Developing countries with increasing service needs and shortage of skilled health workers, governments are investing in community health worker (CHW) programs to address rural health needs. With current renewed interest in CHWs in Tanzania, questions have arisen surrounding the age group composition of this health worker cadre. This study investigated age differences in characteristics, knowledge, and service delivery among CHWs working on maternal, newborn, and child health (MNCH) in rural Tanzania. **Methods:** A quantitative survey was administered to all CHWs that received training from December 2012 to July 2013 in five administrative districts of Morogoro Region, Tanzania where the community integrated MNCH program is being implemented. Program monitoring and evaluation forms provided detailed records of service delivery during CHW home visits. Data on CHW socio-demographic characteristics, knowledge, and service delivery was analyzed through bi- and multivariate analyses. Composite scores were generated across ten knowledge domains: pregnancy, postpartum, newborn, and child care, family planning, injury and infection prevention, malaria, nutrition, and HIV. Ordered logit models were used to estimate relationships between knowledge scores and predictor variables. **Results:** Among ninety seven percent of the eligible 238 Community Health Workers interviewed, the highest percentage (37%) was in the age group above 35 years. A variation in gender was not significant among different age groups. However there was a statistically significant difference ($p<0.05$) in marital status, education levels, use of English language, number of dependants, and income from agriculture among CHWs of different age groups. No Significant differences by age group in MNCH knowledge were observed even after controlling for education, gender, date of training, income, and socio-economic status. There was no significant difference in most CHW service provision across different age groups except for ability to working with other CHW programs and duration of working as CHW, of which both proportion and mean respectively were increasing as the age

increases ($p<0.05$). **Conclusions:** This study showed that apart from some slight differences, there was no statistical difference in CHW knowledge retention, and service provision for MNCH across different age groups. However there was a significant difference in their demographic characteristics that may affect guidelines defining CHWs recruitment and retentions criteria in Tanzania. Besides other criteria for CHW recruitment in rural areas age factor should also be considered to ensure retention of this carder. Further analysis on other social determinants and comparison with qualitative research is indicated to better understand the implications of the social profile of CHWs on the effectiveness and sustainability of the program.

107. **Gunaratna NS, Masanja H, Mrema S, Levira F, Spiegelman D, Hertzmark E, Saronga N, Irema K, Shuma M, Elisaria E, Fawzi WW. Multivitamin and iron supplementation to prevent periconceptional anemia in rural Tanzanian women: a randomized, controlled trial. *PloS one*. 2015; 10(4):e0121552.**

Objective: Women's nutritional status during conception and early pregnancy can influence maternal and infant outcomes. This study examined the efficacy of pre-pregnancy supplementation with iron and multivitamins to reduce the prevalence of anemia during the periconceptional period among rural Tanzanian women and adolescent girls. **Design:** A double-blind, randomized controlled trial was conducted in which participants were individually randomized to receive daily oral supplements of folic acid alone, folic acid and iron, or folic acid, iron, and vitamins A, B-complex, C, and E at approximately single recommended dietary allowance (RDA) doses for six months. **Setting:** Rural Rufiji District, Tanzania. **Subjects:** Non-pregnant women and adolescent girls aged 15–29 years (n = 802). **Results:** The study arms were comparable in demographic and socioeconomic characteristics, food security, nutritional status, pregnancy history, and compliance with the regimen ($p>0.05$). In total, 561 participants (70%) completed the study and were included in the intention-to-treat analysis. Hemoglobin levels were not different across treatments (median: 11.1 g/dL, Q1-Q3: 10.0–12.4 g/dL, p = 0.65). However, compared with the folic acid arm (28%), there was a significant reduction in the risk of hypo chromic microcytic anemia in the folic acid and iron arm (17%, RR: 0.61, 95% CI: 0.42–0.90, p = 0.01) and the folic acid, iron, and multivitamin arm (19%, RR: 0.66, 95% CI: 0.45–0.96, p = 0.03). Inverse probability of

treatment weighting (IPTW) to adjust for potential selection bias due to loss to follow-up did not materially change these results. The effect of the regimens was not modified by frequency of household meat consumption, baseline underweight status, parity, breastfeeding status, or level of compliance (in all cases, p for interaction>0.2). **Conclusions:** Daily oral supplementation with iron and folic acid among women and adolescents prior to pregnancy reduces risk of anemia. The potential benefits of supplementation on the risk of periconceptional anemia and adverse pregnancy outcomes warrant investigation in larger studies.

108. **Guo S, Wu Z, Li W. "Condensation and evaporation heat transfer characteristics in horizontal smooth, herringbone and enhanced surface EHT tubes."** ***International Journal of Heat and Mass Transfer.*** **2015; 85: 281-291.**

An experimental investigation was performed to evaluate convective condensation and evaporation of R22, R32 and R410A inside a smooth tube (inner diameter 11.43 mm), a herringbone tube (fin root diameter 11.43 mm) and a newly developed enhanced surface EHT tube (inner diameter 11.5 mm) at low mass fluxes. The inner surface of the EHT tube is enhanced by dimple/protrusion and secondary petal arrays. For condensation, the heat transfer coefficient of the herringbone tube is 2.0–3.0 times larger than a smooth tube and the EHT tube is 1.3–1.95 times that of the smooth tube. The heat transfer enhancement ratios of the herringbone tube and the EHT tube are larger than their respective inner surface area ratios. Mass flux has a non-monotonic relation with the condensation heat transfer coefficient in the herringbone micro fin tubes; this was especially evident for R32 and R410A. For evaporation, the EHT tube provides the best evaporation heat transfer performance for all the three refrigerants; this is mainly due to the heat transfer enhancement produced from the larger number of nucleation sites, increased interfacial turbulence, boundary layer disruption, flow separation and secondary flow generation caused by the dimple and petal arrays. The evaporation heat transfer coefficient of the herringbone tube is only slightly higher than that of the smooth tube. Overall, the EHT tube provides increased heat transfer enhancement for both condensation and evaporation.

109. Guwatudde D, Nankya-Mutyoba J, Kalyesubula R, Laurence C, Adebamowo C, Ajayi I, Bajunirwe F, Njelekela M, Chiwanga FS, Reid T, Volmink J. The burden of hypertension in sub-Saharan Africa: a four-country cross sectional study. *BMC public health*. 2015; 15(1):1.

Background: Hypertension, the leading single cause of morbidity and mortality worldwide, is a growing public health problem in sub-Saharan Africa (SSA). Few studies have estimated and compared the burden of hypertension across different SSA populations. We conducted a cross-sectional analysis of blood pressure data collected through a cohort study in four SSA countries, to estimate the prevalence of pre-hypertension, the prevalence of hypertension, and to identify the factors associated with hypertension. **Methods:** Participants were from five different population groups defined by occupation and degree of urbanization, including rural and peri-urban residents in Uganda, school teachers in South Africa and Tanzania, and nurses in Nigeria. We used a standardized questionnaire to collect data on demographic and behavioral characteristics, injuries, and history of diagnoses of chronic diseases and mental health. We also made physical measurements (weight, height and blood pressure), as well as biochemical measurements; which followed standardized protocols across the country sites. Modified Poison regression modelling was used to estimate prevalence ratios (PR) as measures of association between potential risk factors and hypertension. **Results:** The overall age-standardized prevalence of hypertension among the 1216 participants was 25.9 %. Prevalence was highest among nurses with an age-standardized prevalence (ASP) of 25.8 %, followed by school teachers (ASP = 23.2 %), peri-urban residents (ASP = 20.5 %) and lowest among rural residents (ASP = 8.7 %). Only 50.0 % of participants with hypertension were aware of their raised blood pressure. The overall age-standardized prevalence of pre-hypertension was 21.0 %. Factors found to be associated with hypertension were: population group, older age, higher body mass index, higher fasting plasma glucose level, lower level of education, and tobacco use. **Conclusions:** The prevalence of hypertension and pre-hypertension are high, and differ by population group defined by occupation and degree of urbanization. Only half of the populations with hypertension are aware of their hypertension, indicating a high burden of undiagnosed and un-controlled high blood pressure in these populations.

110. **Hamad AH. Sero-prevalence and associated factors of leptospirosis and brucellosis among febrile patients attending St Francis Referral Hospital Kilombero District Morogoro, Tanzania. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences.***

Background: Leptospirosis and Brucellosis are potential febrile bacterial zoonoses mainly affecting low resources tropical and sub-tropical countries including Tanzania. These diseases are of public health importance, particularly in rural area of Tanzania. The objective of this study was to determine the sero-prevalence and associated factors of leptospirosis and brucellosis among febrile patients attending St Francis Referral Hospital (SFRH) in Kilombero District Morogoro, Tanzania. **Methodology:** A cross sectional hospital based study was conducted among febrile patients suspected of leptospirosis and brucellosis attending the hospital. During the study a total 140 febrile patients were enrolled after providing written consent. Those 140 enrolled patients were tested for both anti-leptospira and anti-brucella antibodies in their blood using SD leptospira IgG/IgM rapid test and all positive cases were confirmed using SD leptospira IgM ELISA for leptospirosis, Rose Bengal Agglutination Test (RBAT) were used as screening for anti-brucella antibodies and those positive cases were confirmed by competitive ELISA polyvalent antigen for brucellosis. Questionnaires were used for collection data regarding socio-demographic characteristics and clinical history of the patients. Results: Out of 140 febrile patients tested for both leptospirosis and brucellosis, the overall sero-prevalence of leptospirosis was 6.4% and 2.1% for brucellosis. The patients with mean age 23.1± (13.2 standard deviation) were strongly predicted with the same risk of being infected by leptospira agents. There is no statistically significant association of the sex, education level, occupational status and history of exposure to the leptospirosis infection. The cases of brucellosis were not able to determine the associated factors due to non confirmed cases **Conclusion:** Leptospirosis exists in Kilombero District with low prevalence among febrile patients attending outpatient department of the SFRH seeking health care assistance. The patients with mean age 23.1± (13.2 standard deviation) were strongly predicted with the same risk of being infected by leptospira agents. There was no case of brucellosis confirmed in this study that restricts to determine the factors associated with brucella infection.

111. **Haonga BT, Mrita FS, Ndalama EE, Makupa JE. Short-term outcome of patients with closed comminuted femoral shaft fracture treated with locking intramedullary sign nail at Muhimbili Orthopaedic Institute in Tanzania.** ***Tanzania Journal of Health Research*****. 2015; 17(3).**

Background: Comminuted femoral shaft fractures are complex to treat because of increased risk of limb length discrepancies and mal-rotation deformities. Currently the interlocking intramedullary nail using image intensifiers is a suggested treatment for comminuted femoral shaft fractures. This study aimed to evaluate the short-term outcome of patients with closed comminuted femoral shaft fracture treated with locking intramedullary SIGN nail without image intensifiers at Muhimbili Orthopaedic Institute (MOI) in Tanzania. **Methods:** A prospective hospital base study was conducted on patients with closed comminuted femoral shaft fractures admitted at MOI from March 2011 to February 2012. A total of 91 adult patients (18 to 84 years) were enrolled in the study. Of the total patients, 80 (88%) patients were male, 11 were lost to follow-up, and 80 patients completed follow-ups of 18 weeks post operatively. Structured questionnaires and checklist forms were used to collect information. Operations were carried out either by antegrade or retrograde SIGN nail. Post operatively control radiographs, the lower limb length and mal-rotation deformities were assessed. **Results:** Comminuted femoral shaft fracture accounted for 20.3% of all adult femoral shaft fractures admitted at MOI. Deep wound infection occurred in 2.5%. Shortening of 2-3cm was seen in 3.8% of the patients. No patient had shortening of more than 3cm. External rotation deformity of more than 20 degrees occurred in 6.3% of the cases. Internal rotation deformity of more than 15 degrees was seen in 7.9%. Knee flexion of less than 90 degree was encountered in 7.5% of patients. By 18th week 95% of the patients had callus formation. **Conclusion:** SIGN nail appears to be an effective treatment for comminuted femoral shaft fractures in settings where image intensifiers and fracture tables are not readily available. They have excellent to good outcomes in rate of callus formation, limb length and limb alignment outcomes.

112. **Haonga BT, Zirkle LG. The SIGN Nail: Factors in a Successful Device for Low-Resource Settings.** ***Journal of orthopaedic trauma*****. 2015; 29:S37-9.**

Surgeons in low-resource settings manage an increasing number of patients presenting with high-energy fractures. The number of surgeons and the operating time available are frequently not adequate to treat these fractures in a timely manner. A common cause of delay in treating fractures is waiting for the patient to accumulate sufficient funding to pay for the surgery, including the surgical implant. The donation of the SIGN intramedullary nail interlocking screw system obviates a major delay in timing of surgery. The SIGN intramedullary nail has been designed to be used in low-resource settings as it can be placed without fluoroscopy or electricity. The SIGN-trained surgeons are very skillful in hand reaming the canal, placing the nail, and interlocking screws without fluoroscopy. As more is learned about fracture healing, the SIGN system continues to evolve. The SIGN system is expanding to include deformity correction and soft tissue coverage.

113. **Hategekimana CJ. Pathological study of gastrointestinal stromal tumors diagnosed at muhimbili National Hospital, Dar-es-salaam, Tanzania. Master MMed (Anatomical Pathology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Gastrointestinal Stromal Tumors (GISTs) are mesenchymal neoplasm of the gastrointestinal tract (GIT) and abdomen that are CD117, c-kit (or KIT) positive. They constitute the majority of mesenchymal lesions of the GIT. Imatinib, a tyrosine kinase inhibitor was found to be an effective chemotherapy to most of GISTs with specific c-kit mutations. Till recently at Muhimbili National Hospital (MNH) c-kit protein Immunohistochemistry was not systematically performed for all suspected cases of GISTs. This study reviewed all cases of mesenchymal tumors which constitute differential diagnosis of GISTs. We performed CD117 Immunohistochemistry to identify and characterize these tumors. This study will provide an important knowledge on GISTs as their characteristics have not yet been studied in Tanzania and East Africa. **Aim:** To describe the demographic data from patient's files and pathology of GIST as analyzed from paraffin blocks and histological slides from archives of MNH. Methodology: This study was conducted in the Unit of Histopathology, Muhimbili National Hospital, Dar es Salaam, Tanzania. It was a hospital-based, cross sectional and retrospective study. Clinical data review, histochemical and immunohistochemical analysis of mesenchymal

tumors of the GIT were done. Histological slides and blocks were retrieved in order to review all GIT mesenchymal tumor cases diagnosed at MNH since January 1st, 2008 to 31st, December 2014. Routine H&E and CD117 immunohistochemistry were done in order to identify and describe pathological aspect of GISTs. **Results:** Patient's mean age was 53 years with male: female ratio of 5:1. Twenty-six cases of GIST were identified from different sites and they represent 1.2% of the GIT tumors and 40% of GIT mesenchymal tumors. For 12 cases (46%), other diagnostic terms than GIST were originally given on routine H&E. The stomach was the favorite site of GIST followed by the colon and the small intestine with 53%, 26% and 21% of the cases in the tubular GIT respectively. A relatively high number of GISTs (7cases) were found in extra gastrointestinal sites and their malignancy potential was higher compared to the tumor from other sites. The lowest proportion of malignant GIST was found in the stomach. Sixty-two percent of the cases showed spindle cell histology and 38% were epithelioid. The histological type was not correlated to the malignancy potential. Interestingly, majority of the cases (65.3%) were malignant GISTs. **Conclusion:** GISTs are rare tumors but most frequent mesenchymal tumors of the GIT. Compared to other published series, this study found a higher number of malignant GISTs and this is probably due to the delay of diagnosis.

114. **Hizza R, Mangi J, Kamazima S, Moshiro C. Performing arts as entertainment-education method for health communication: Reflections from Rift Valley fever project in Kongwa, Tanzania. , *3rd MUHAS Scientific Conference,* 2015.**

Background: Rift valley fever (RVF) is a re-emerging vector-borne disease with rapid socio-economic impact. We conducted a baseline study to assess RVF outbreak preparedness as well as knowledge, attitudes and practices regarding RVF in Kongwa and Kilombero districts. In general, findings indicated that there is lack of knowledge in preparedness of the disease and its dynamics related to animals and humans. As entertainment-education method, performing arts has proven to be an effective method for health promotion and disease prevention for various health interventions targeting rural and urban populations. **Aim:** In this article, we document how the approach has been used for conveying information, education and communication messages to promote outbreak preparedness for RVF while highlighting some of the key lessons learned from

the intervention. **Methods:** As communication tool, Performing Arts comprised indigenous songs and dances used to raise awareness, mobilize communities and promote practices favorable for timely response and preparedness for RVF outbreak in six villages. **Results:** Findings suggest that using local theater troupes enhances a sense of ownership of intervention and also acts as a strategy for recognition of local talents and resources in improving health and disease control. A rapid assessment of the intervention reveals that entertainment-education efforts for RVF hold the potential for being integrated into routine social and cultural lives of the community members as a strategy to promote knowledge and reduce risks of infection for RVF during outbreaks. Furthermore, findings indicate that edutainment interventions require active participation of local power brokers from project inception stage in order to enlist public support and engagement. **Conclusion:** RVF intervention highlights the need to focus on the use local performing groups to enhance continuity and sustainability of edutainment interventions.

115. **Hunter DH, Janabi M.One aspect of the present invention relates to novel compounds that can be used to prepare radiolabeled compounds in an effective manner. A second aspect of the present invention relates to a method of synthesizing radiolabeled compounds.** ***Patent Application.*** **2015: (14); 633-689.**

116. **Hunter E, Burton K, Iqbal A, Birchall D, Jackson M, Rogathe J, Jusabani A, Gray W, Aris E, Kamuyu G, Wilkins PP. Cysticercosis and epilepsy in rural Tanzania: a community-based case–control and imaging study.** ***Tropical Medicine & International Health*****. 2015; 20(9):1171-9.**

Objective: To assess the contribution of neurocysticercosis (NCC) to the burden of epilepsy in a rural Tanzanian population. **Methods:** We identified adult people with epilepsy (PWE) in a door-to-door study in an established demographic surveillance site. PWE and community controls were tested for antibodies to Taenia solium, the causative agent of NCC, and all PWE were offered a computed tomography (CT) head scan. Data on household occupancy and sanitation, pig-keeping and pork consumption were collected from PWE and controls and associations with epilepsy were assessed using chi-square or Fisher's exact tests. **Results:** Six of 218 PWE had antibodies to T. solium (2.8%; 95% CI 0.6–4.9), compared to none of 174 controls (Fisher's exact test, P = 0.04).

Lesions compatible with NCC were seen in eight of 200 CT scans (4.0%; 95% CI 1.3–6.7). A total of 176 PWE had both investigations of whom two had positive serology along with NCC-compatible lesions on CT (1.1%; 95% 0.3–4.0). No associations between epilepsy and any risk factors for NCC were identified. **Conclusions:** Neurocysticercosis is present in this population but at a lower prevalence than elsewhere in Tanzania and sub-Saharan Africa. Insights from low-prevalence areas may inform public health interventions designed to reduce the burden of preventable epilepsy.

117. **Hussain GA, Shafiq M, Kumpulainen L. "Performance evaluation of noise reduction method during on-line monitoring of MV switchgear for PD measurements by non-intrusive sensors."** ***International Journal of Electrical Power & Energy Systems.*** **2015. 64: 596-607.**

Partial Discharge (PD) measurement is a globally accepted method for insulation diagnosis of electrical assets. The consequences of insulation breakdown are well known. The trend is to move from conventional offline testing to online monitoring for insulation life prediction, which results in the inclusion of high frequency noise in the captured signals. Therefore de-noising is of paramount importance in online monitoring to obtain useful information from the signal. In this research, a 20 kV switchgear panel has been subjected to PD faults in the laboratory and measurements have been carried out by using different non-intrusive sensors including a novel sensor, the *D*-dot sensor and recorded by a high frequency oscilloscope. The measured results show the effective applicability of sensors for switchgear. The Discrete Wavelet Transform (DWT) has been used to de-noise PD signals in this paper. Time domain and frequency domain comparison of original and de-noised PD signals reveals the significance of this technique for online monitoring of Medium Voltage (MV) switchgear. Finally, an adaptive online de-noising concept, based on automatic de-noising is also proposed in this paper.

118. **Hussain GA, Shafiq M, Lehtonen M. "Online Condition Monitoring of MV Switchgear Using-Dot Sensor to Predict Arc-Faults."** ***Sensors Journal, IEEE. 2015. 15(12): 7262-7272.***

High energy arc faults in medium-voltage (MV) switchgear are serious hazards to personnel or equipment, and may cause process interruptions. Most of the electrical faults

leading to arc are developed slowly, e.g., due to insulation degradation or bad connection. In this paper, the detection of partial discharges (PDs) and low energy arcing between loose contacts has been proposed for online monitoring of MV switchgear. The PD measurements in a switchgear panel and arcing measurements across a 0.2-mm sphere-to-rod gap have been carried out. Measured signals are captured by a differential electric field sensor (D -dot sensor) and recorded by a high-frequency oscilloscope. In general, online measured signals are suppressed by high-frequency noise, and therefore, de-noising of measurements is of paramount importance to get reliable information about a fault. An implementation of discrete wavelet transform, to de-noise the measured signals, has been proposed in this paper. Comparison with a well-known infinite impulse response filtering technique has been made. Time and frequency domain comparisons between original and de-noised signals reveal the significance of this technique for arc fault prediction in MV switchgear. A layout for the integration of online monitoring to central control is also presented.

119. Ibinaiye P, Wammanda D, Okpe M, Kajogbola G, Gbadamosi A, Akorede S.Computerized tomographic scan findings in children with cerebral palsy seen at ABUTH Zaria, Nigeria. *3rd MUHAS Scientific Conference, 2015.*

Background: Cerebral palsy (CP) is defined as permanent impairment of movement and posture resulting from a non-progressive brain disorder- due to hereditary factors or events during pregnancy, delivery, the neonatal period and the first 2 years of life. This is retrospective analysis of the computed tomographic (CT) scan findings in 32 children diagnosed with CP. The aetiology and clinical features of these children were also evaluated.**Aim:** The aim of this study was to describe the CT findings in children with CP and relate these to their respective aetiologies, clinical features and as well as the types of CP. **Materials and methods:** The CT findings in 32 children with diagnosis of CP and with detailed clinical information were analysed. The 84.4% positive CT findings were analyzed to evaluate their relationship with the clinical types, as well as the aetiological basis for the CP.**Results:** The spastic type, 78.1% of the total number of children, had the highest positive findings. The yield was increased in children with birth asphyxia (46.9%) and neonatal jaundice (37.5%). The findings were those of cerebral atrophy in 46.9%, infarcts in 12.5%, hydrocephalus in 9.4% and porencephaly 6.3% of cases. The treatable

lesions, such as Dandy Walker syndrome, tumour, hydrocephalus and porencephaly were identified in 21.9% of cases.**Conclusion:** CT scan is no doubt efficacious in the management of children with CP.

120. **Ibrahim MH. Seroprevalence of Rubella Specific IGM and IGG Antibodies in Children Aged 9 Months Before and After Combined Measles and Rubella Vaccination in Dar Es Salaam, Tanzania. Master of Science (Microbiology and Immunology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Rubella is a common childhood febrile illness with short lived skin rash. During the first and second trimesters of pregnancy it is associated with complications which may lead to miscarriage, fetal death and congenital abnormalities. Tanzania completed the first nationwide one week immunization campaign with combined measles and rubella (MR) vaccine to all children aged 9 months to 14 years and intends to replace measles alone with measles and rubella combined vaccinations at 9 months of age to be repeated at 18 months beginning 2015.The baseline prevalence of rubella specific IgM and IgG antibodies in Tanzanian infants at 9 months of age was not known at the time of introduction of MR immunization in the country which necessitated the conduct of the present study. **Objectives:** To determine the sero-prevalence of rubella specific IgM and IgG antibodies in infants aged 9 months before and four weeks after receiving MR vaccination in Dar es Salaam, Tanzania. **Methodology:** This was a combined cross sectional and longitudinal study conducted between March and May 2015 in Ilala Municipality, Dar es Salaam City. Infants aged 9 months were consecutively enrolled after their mothers or guardians had given written informed consent. A questionnaire was used to collect socio—demographic information for both infants and parents. Dried blood spots (about 50;.11 on blotting paper rings) were collected from a heel or finger prick of study infants. Rubella specific antibodies titres (IgG and IgM) before and after vaccination were determined using SERION ELISA classic Roteln test kit (virion/serion D- 97076 Wngirzburg, Germany). **Results:** A total of 190 infants were enrolled at baseline; a majority 99(52.1 %) were males. Of the190 infants analyzed at baseline 135 (71.1%) had rubella specific IgG antibodies while only $(2.6%) had specific IgM antibodies. After vaccination, rubella seroconversion rate for the 47 infants who were initially IgG seronegative was 100% indicating that the MR vaccine used was highly

immunogenic. For the 73 infants who had non protective level of IgG at baseline, 59(80.8%) attained protective levels after immunization while among the 47 who were IgG seronegative at baseline,40 (85.1%) attained protective levels of antibodies. **Conclusion:** Majority of infants (71.1%) at 9 months of age, had rubella specific IgG antibodies and few had IgM specific antibodies suggesting recent infection by the rubella virus. After MR vaccination, rubella IgG seroconversion rate was 100% and S0 to 85% vaccines acquired protective antibody levels. **Recommendation:** Since the first MR vaccination in Dar es Salaam gave rise to only 80 to 85% protective IgG antibodies incidence in the 9 months old infants, the second scheduled MR immunization at 18 months in Tanzania is justified following which another serosurvey could be undertaken before and four weeks after.

121. **Ijani NA. Knowledge and Perception of Human Papilloma Virus Infection and Human Papilloma Virus Vaccine among Healthcare Providers in Public Facilities in Dar es Salaam. Master of Medicine (Obstetrics and Gynecology)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences***.

Background: Human papilloma virus is a Deoxyribonucleic acid (DNA) virus that infects mucous membranes and keratinocytes of the skin. It is a sexually transmitted infection, asymptomatic and self-limiting in majority of cases. HPV sub-types 16 and 18 (high risk HPV) have been associated with cancer of the cervix; one of the leading causes of cancer morbidities and mortalities in women in developing countries including Tanzania. Vaccination of sexually naïve girls is amongst the strategy in preventing cancer of cervix. Healthcare providers' knowledge and perception are instrumental in ensuring that eligible girls and boys are vaccinated against the virus at an early age. **Aim:** To determine the knowledge and perception of HPV infection and HPV vaccine among health care providers in public facilities in Dar – es – salaam. **Methodology:** This was a cross sectional descriptive study among healthcare providers in 7 public health facilities in Dar – es – salaam. Randomly selected healthcare providers were selected and asked to fill a semi – structured, self – administered questionnaire to assess knowledge and perception on HPV infection and HPV vaccine among healthcare providers in these hospitals. Data was analyzed by SPSS version 20; Chi-square test was conducted to determine the association between the proportions of socio-demographic characteristics

and, knowledge of HPV infection and HPV vaccine. Modified Bloom's criteria were used to determine the association between the socio-demographic characteristic and knowledge of HPV infection and HPV vaccine. Measures of associations used were chi-square for univariate analysis and logistics regression for multivariate analysis. The p value of less than 0.05 was considered significant. **Results:** A total of 436 healthcare providers were recruited and interviewed. Seventy percent of those interviewed were females, nurses and were less than 40 years. Fifty eight percent of the providers had good knowledge on the cause, transmission, diagnosis, symptoms and prevention of HPV infection. Only a third knew of the self-limiting nature of the HPV infection in the majority of cases. Less than a half of healthcare providers knew that HPV infection can clear without medication. Sixty percent of the providers had poor knowledge on the HPV vaccine including the dose, route and side effects. Seventy two percent (72%) of healthcare providers agreed that they would give the vaccine to their daughter. Whereas 74.5% agreed that they would give the vaccine to eligible clients. Sixty three percent (63%) agreed that giving the vaccine will not increase promiscuity and 65.4% agreed that giving the vaccine will not cause early sexual debut. They (62%) also had good perception towards the HPV vaccine. The knowledge of HPV infection and HPV vaccine were significantly associated with professional level, cadre and level of the facility. **Conclusion:** Overall, knowledge of HPV infection was good in about half of the healthcare providers. However, the knowledge of HPV vaccine was poor in about two thirds of the healthcare providers. The perception of HPV vaccine is good. Since healthcare providers are good source of information to the community, effort to educate them through on job training should be emphasized.

122. **Ijumaa M. Short Term Outcome Of Operative Treatment Of Diaphyseal Femoral Fractures In Children Admitted At MOI – Tanzania Master of Medicine (Orthopedics and Traumatology)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Introduction: As surgeons consider different methods to treat pediatric femur fractures and mobilize the injured child, the ideal mode of treatment remains controversial20. There is wide consensus on the non-operative treatment of children less than six years of age. Operative treatment is recommended for children more than 12 years of age, only the

surgical options vary. The age group of 6-12 years remains a controversial area with multiple studies advocating different lines of treatment43. **Objective:** To evaluate the short term outcome of operative treatment in children with diaphyseal femur fractures at MOI. **Methodology:** A prospective study was done on children, 5 years and above with diaphyseal femoral shaft fractures treated operatively. This study was conducted at MOI for a period of twelve months from March 2014 to February 2015. Forty three patients met the inclusion criteria. Standard operating procedures were followed for all the patients. Data was collected with the help of a research assistant and guided by a structured questionnaire as well as using a tape measure and goniometer to accomplish the data collection process. Parameters of outcome assessed were the rate of callus formation at fracture site, complications such as infection, limb length discrepancy, malalignment (rotational/angular) and reoperation rate. These parameters were assessed at the 2nd, 6th, 12th, 18th and 24th weeks post-surgery. The data obtained was analyzed using SPSS software version 20. **Results:** A total of 39 patients with femoral diaphyseal fracture were enrolled and followed up for 24 weeks. Twenty three patients were treated by AO dynamic compression plate (DCP) and 16 patients treated by Intramedullary (IM) nail. In IM nail group no patient had delayed wound healing while in the plate fixation group 4 patients (17.4%) had delayed wound healing after surgery. There was no statistically significant difference in rate of infection between the two treatment groups (p-value: 0.130). Fifteen patients (93.8%) in IM nail group and 20 (87%) patients in compression plate group had notable callus formation by 6th week. By 12th week all 39 patients had callus formation. The 6th week difference was not statistically significant. (p value 0.631) One patient (6.2%) had limb lengthening of <2cm in IM nail group while 3 patients (13%) developed limb lengthening between 1-2cm in DCP group. No patient had limb length discrepancy greater than 3cm. Virus malunion was seen in 2 patients (12.5%) of IMN group. These findings were not statistically significant. **Conclusion:** Both intramedullary nail and dynamic compression plate have good outcome in treating pediatric femoral fractures.

123. Ikama MS, Nsitou BM, Makani J (et al). "[Hypertension and rate control in Brazzaville Congo: Place of ambulatory blood pressure monitoring (ABPM)]." ***Annales de cardiologie ET d'angeiologie*****. 2015; 64 (2).**

To evaluate the rate control in the hypertensive patients and to identify the predictive factors of non-control. It was about a cross-sectional study with prospective collection of data over a period of 36 months. It has been held in Brazzaville, and included a consecutive series of 620 hypertensive patients known and treated for at least 6 weeks, having profited from an ambulatory blood pressure monitoring (ABPM) with therapeutic aiming. We used the TONOPORT V and the software Cardio soft 6.51 of GE Health Care, respectively for the recording and the data analysis. The threshold fixed on the average of 24-hour was BP<130/80 mmHg, and the patients divided into two groups according to whether they were or not controlled. They were 352 men (56.8%) and 268 women (43.2%), old on average of 53.8 ± 9.7 years (ranges: 29 and 89 years). The standard of living of the patients was average in 330 cases (53.2%), weak in 132 cases (21.3%), and high in 71 cases (11.5%). The other associated risk factors were sedentariness in 275 cases (44.4%), overweight/obesity in 134 cases (21.6%), dyslipidemia in 121 cases (19.5%), diabetes mellitus in 90 cases (14.5%), and tobacco addiction in 25 cases (4%). The hypertension, old of 5.8 ± 5.7 years on average, was controlled among 215 patients (34.7%). The 24- hour BP average was 139 ± 14 mmHg for the SBP and 88.2 ± 10.2 mmHg for the DBP. The awake and asleep BP averages were respectively 141 ± 14 mmHg and 133 ± 16.2 mmHg for the SBP, 90.5 ± 10.5 and 81.2 ± 11.1 mmHg for the DBP. The antihypertensive protocol used was a immunotherapy in 130 cases (21%), biotherapy in 287 cases (46.3%), tritherapy in 154 cases (24.8%), quadritherapy or more in 27 cases (4.3%). Prevalence of non-dipping was 43%. Age and male gender were the significant predictors of poor control. The rate control of hypertension in our study population remains low. Its improvement passes by the education of the hypertensive patients and the improvement of their living conditions.

124. Ikama MS, Nsitou BM, Makani J (et al). "Pratique de a mesure ambulatoire de la pression artérielle à Brazzaville (Congo): données préliminaires." ***The Pan African Medical Journal*****. 2015.**

Introduction: Évaluer l'apport de la MAPA dans la prise en charge de l'hypertension artérielle à Brazzaville. **Methods:** Cette étude transversale descriptive a été menée à Brazzaville entre janvier 2011 et décembre 2013 (soit 36 mois). Elle a inclus une série consécutive de 1040 patients ayant bénéficié d'une Mesure Ambulatoire de la Pression

Artérielle. Nous avons utilisé le TONOPORT V ET le logiciel Cardio soft 6.51 de GE Health Care, respectivement pour l'enregistrement et l'analyse des données. Les seuils fixés sur les moyennes de 24H étaient une PA < 130/80 mmHg pour les patients contrôlés, et une PA > 130/80 mmHg pour la confirmation de l'HTA. **Résult:** ats IL s'agissait de 573 hommes (55%) et de 467 femmes (45%), âgés en moyenne de 51, 7 ± 10, 6 ans (extremes: 22 et 89 ans). L'indication de la MAPA était à visée thérapeutique dans 627 cas (60, 3%), à vise diagnostique dans 410 cas (39, 4%), et dans trois cas une suspicion d'effet « blouse blanche ». Dans l'indication à visée diagnostique, l'HTA était confirmée dans 303 cas (74%). La moyenne nycthémérale était de 139 ± 12 mmHg pour la PAS et 89,7 ± 9,6 mmHg pour la PAD; 141,2 ± 13,9 mmHg de PAS et 92,4 ± 10,0 mmHg de PAD en période diurne; 131,1 ± 13,5 mmHg de PAS et 80,7 ± 9,9 mmHg de PAD en période nocturne. Dans l'indication à visée thérapeutique, l'HTA était contrôlée chez 220 patients (35%). La moyenne nycthémérale était de 139 ± 14 mmHg pour la PAS et 88,1 ± 10 mmHg pour la PAD. Les moyennes diurnes et nocturnes étaient respectivement de 140,7 ± 14,0 mmHg et 133,1 ± 16,2 mmHg pour la PAS, 90,3 ± 10,5 et 81,1 ± 10,9 mmHg pour la PAD. Le protocole antihypertenseur utilisé était une monothérapie dans 126 CAS (22%), une bithérapie dans 270 CAS (47%), une trithérapie dans 149 cas (26%), une quadrithérapie et plus dans 29 cas (5%). Conclusion: Cette étude préliminaire a montré l'importance de la MAPA comme outil de diagnostic et d'évaluation thérapeutique. Son utilization rationnelle dans notre contexte permettrait d'améliorer la prise en charge des patients hypertendus.

125. **Ikanga C. BMI versus BMI for age methods for malnutrition assessment among HIV infected adolescents in selected health facilities in Ilala District, Dar Es Salaam, Tanzania. Muhimbili National Hospital Dar Es Salaam, Tanzania. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences.***

Background: Data on HIV prevalence derived from the Tanzania HIV/AIDS and Malaria Indicator Survey (2007/8) shows a steady increase in HIV prevalence with age, especially among adolescent girls: from 0.7 per cent prevalence among those aged 15 to 17 years, rising to 2.7 per cent among those aged 18 to 19 years. TFNC integrated nutrition into the essential package of care treatment and support for people living with HIV/AIDS. Nutrition assessment, counseling and support (NACS) were integrated in care

and treatment centers. **Objectives:** This study aim to explore malnutrition prevalence among 15 – 19 aged HIV infected adolescent attended care and treatment centers in selected healthy facilities in Ilala district and further more to compared malnutrition prevalence obtained by using BMI versus BMI for age anthropometry nutrition assessment tools. **Methods:** This is a descriptive cross sectional study which involved a total of 409; 15 – 19 years old adolescents enrolled in care and treatment centers of selected health facilities in Ilala Municipal. Nutrition status were assessed by using BMI and BMI for age WHO cut off point so as to determine malnutrition prevalence among them, the data derived from secondary source. Data were analysed by using SPSS version 15.0. Cross tabulation was done to get descriptive summary statistics. **Results:** Under malnutrition prevalence by using BMI and Z score were 22% and 12.3% respectively, Over malnutrition prevalence by using BMI and Z score were 10.5% and 2% respectively for both male and female adolescent, but males adolescent were more affected by under malnutrition and females were more affected by over malnutrition in this study. There were no significant differences in malnutrition prevalence obtained when those two nutritional assessment tools were used. Never the less the absence of evidence is not the evidence of absence. **Conclusion and recommendations:** Ministry of health and social welfare through TFNC should put emphasis on using WHO recommendation for adolescent's nutrition assessment tools because inappropriate nutritional status assessment tools would led to overestimation of malnutrition prevalence to adolescent in the selected Health facilities.

126. **Ikingura J, Temu M. Institutional Research Ethics Committees (IRECs) in Tanzania: The current status at health research institutions.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Officially recognized regulations, guidelines, rules, SOPs; A system of well functioning RECs; Ethics training for researchers, members of RECs; and a system of oversight and monitoring are essential in establishing an effective research ethics infrastructure. In Tanzania, there are ten regulations for coordination of health research, stipulated in NIMR Act No 23 of 1979, NIMR Act amendment in 1997. The National Health Research Ethics Committee (NatHREC) Established in 2002 has a system of functioning Institutional RECs. NatHREC has organized research ethics training for

researchers and members of IRECs and has developed Standard Operating Procedures (SOPs) that guide establishment and operations of the Institutional RECs. **Objective:** To report the progress of establishment of Institutional RECs, and their operations, in relation to supporting the functions of the National Committee. **Methods:** Data collection was in June 2013, through a structured questionnaire that was administered through physical visits to the Institutions. Sampling was purposive, where only Institutions that had operating RECs were visited thus responded to the Questionnaire. **Findings:** Ten RECs were covered, but responses were obtained from 80% (N=8) of the total sample. Out of the eight covered ones, 50% (n=4) were based at private institutions, the rest were public institutions. **Conclusion:** RECs in Tanzania are operating in the National ethical review framework. The committees are active and performing their functions, but with limitations. There is networking willingness, and what they need is an enhanced communication system where a two way communication will be possible. It was noted that RECs acknowledges and are aware of the national advisory role played by the NatHREC, and are supportive of the ethical review system in Tanzania.

127. **Innocent E, Ahmed H. Constituents of Essential Oils from Three Plant Species Used in Traditional Medicine and Insect Control in Tanzania.** ***Journal of Herbs, Spices & Medicinal Plants. 2015: 21(3); 219-229.***

The essential oils of three aromatic plant species, *Lantana viburnoides* sp. *viburnoides* var. *Kisi* (A. Rich.) Verdc. *Clausena anisata* (Willd.) Benth. And *Uvariodendron gorgonis* Verdc. Were analysed for their chemical compositions and repellency activity against *Anopheles gambiae s.s*. The major chemical constituents were piperitenone (25.25%) and Artemisia ketone (13.96%) in *L. viburnoides* oil; Estragol (88.38%) in *C. anisata*; and eugenol (89.82%) in *U. gorgonis*. The essential oils exhibited varying repellency properties against *An. gambiae* confirming the ethno botanical usage as insect repellent. Further prospect exist of improving repellency of *U. gorgonis* and *L. viburnoides* essential oils by incorporating some inactive carriers.

128. **Jabir MM. Seroprevalence and spatial distribution of rift valley fever in humans residing in agro-pastoral and pastoral communities during inter epidemic period in**

the Serengeti Ecosystem, Northern Tanzania. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences.*

Background: Rift Valley Fever (RVF) remains an important public health problem as it may result to loss of human's life and cause severe destruction of livestock export trade across the continents. The last outbreak (2006/7) was most devastating, causing 141 human deaths out of 309 cases, with thousands of abortions and deaths in domesticated animals. Recent study in the Serengeti ecosystem shows active circulation of virus in insects, domestic and wildlife communities and hence, the need to understand the situation in humans. **Objectives:** To determine the sero-prevalence of RVF, spatial distribution, community knowledge and demographic factors associated with disease in the Serengeti ecosystem. **Methodology:** This was a hospital based cross-sectional study that involved agro pastoral and pastoral community in the Serengeti ecosystem. General exposure status was determined by detecting anti–RVF IgG using competitive ELISA while recent infection was determined by detecting anti–RVF IgM using capture ELISA. Questionnaires were used to collect demographic information as well as community knowledge regarding disease transmission. Data was entered, validated and analyzed using Epi-info 7. **Results:** A total of 751 study respondents were enrolled in the study. Their median age was 35.5 range of 5-90, female constituted 58.5% while age group 30-49 contributed 51% of all respondents. Of them, 34 tested for IgG giving a prevalence of 4.5%. Of the 34 that tested positive for (IgG), 6(17.6 %) tested positive for IgM. Sero-prevalence was high in pastoralist (9.8%) p=0.008 and in Ngorongoro district (8.1%) p= 0.003. There was very low knowledge of disease in the community with only 4.9% of respondents with good knowledge of RVF disease. All knowledgeable respondents were males. Bunda recorded high level of knowledge compared to Ngorongoro and Serengeti. Increase in age shows a significant relation with knowledge of disease. Only level of education was not associated with knowledge of RVF disease. **Conclusion:** Overall, 4.5% of the study participants have been previously exposed to RVF, and some of them tested positive for IgM indicating recent exposure, thus, the study found both previous and recent exposure of RVF in humans residing in agro-pastoral and pastoral community of the Serengeti ecosystem. There was low knowledge of disease among the community members both in agro-pastoral and pastoral communities. Ngorongoro district, especially

in typical pastoral communities were most exposed to RVF compared to Bunda and Serengeti.

129. **Jacob M, Frankl A, Beeckman H. (et al.) "North Ethiopian Afro-Alpine Tree Line Dynamics and Forest-Cover Change since the Early 20th Century."** ***Land Degradation & Development*** **. 2015; 26(7): 654-664.**

High-altitude forests are very important for local livelihood in the vulnerable environment of the densely populated tropical highlands. Humans need the ecosystem services of the forest and directly impact the forest through livestock herding, fire, and wood harvesting. Nevertheless, temperature-sensitive tree lines in the tropics are scarcely investigated in comparison with higher northern latitudes. In this study, the *Erica arborea* L. tree line is studied in a tropical mountain in the North Ethiopian highlands: Lib Amba of the Abune Yosef Mountain range (12°04′N, 39°22′E, 3993 m asl). The present tree line and forest cover was recorded by high-resolution satellite imagery from Google Maps and field data (2010–2013), while historical forest cover was studied from aerial photographs (1965–1982) and repeat photography (1917–2013). The aerial and satellite images were orthorectified and classified in forest/non-forest binary maps. The binary forest layers were used to detect forest-cover change and tree line dynamics by image differencing between the three time layers (1965–1982–2010). These maps and a terrestrial photograph indicate two periods of deforestation (1917–1965 and 1982–2013), whereas the forest cover was stable between 1965 and 1982. Deforestation was especially severe (with 63%) between 1982 and 2010, associated with a population increase from 77 to 153 inhabitants per square km. There is significant evidence that the elevation of the *E. arborea* L. tree line increased from 7 to 15 vertical meters between 1965 and 2010, in an area with decreasing anthrop zoogenic pressure.

130. **Jacob M, Kazema R. Magnetic resonance imaging pattern of spine degenerative disease in adults with low back pain in Dar es Salaam, Tanzania.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Magnetic Resonance Imaging (MRI) is rarely used to investigate patients with low back pain (LBP) in Least Developed Countries including Tanzania. Studies done elsewhere have reported that 80% of adults suffers from LBP and the main cause is

spine degenerative disease (SDD). MRI is the best modality to diagnose SDD. The pattern of this disease in Tanzania is unknown. **Objective:** We investigated MRI pattern of spine degenerative disease among adults with LBP in Dar es Salaam. **Methods:** We conducted a cross sectional study to investigate a total of 165 consecutive patients referred for MRI at Muhimbili National Hospital (MNH), Dar es Salaam from March to September 2010. Questionnaires were used to record imaging findings of SDD, including_disk degeneration, Modic changes, disk bulge and herniation, canal stenosis and nerve root compression. **Results:** The main finding was that many patients (94%) had multiple SDD lesions which appeared to increase significantly with increasing age ($p < 0.05$). However, there was not any significant difference between sexes. The commonest lesions were: disk degeneration, nerve root compression and disk herniation 83%, 77% and 63%, respectively. The least common lesions were central canal stenosis and Modic changes 30% and 28%, respectively. L4/L5 & L5/S1 were the most affected spine levels.**Conclusion:** MRI has shown to be useful in the diagnosis of SDD as most (94%) of patients had at least one degenerative imaging finding, hence proper evaluation of spine MRI is highly recommended for proper diagnosis hence proper patient management.

131. **Jacob M, Akoko R, Kazema R. "Lumbar Disc Degenerative disease: Magnetic Resonance Imaging Findings in Patients with Low Back Pain in Dar Es Salaam."** ***East and Central African Journal of Surgery*****. 2015; 20(1): 122-131.**

Background: Lower back pain (LBP) is a public health problem and lumbar disk degenerative disease (LDDD) is a main cause. Studies elsewhere show that the prevalence of LDDD ranges from 85% - 95%. MRI being the best modality for spine disorders, we studied pattern of LDDD in patients with LBP. **Methods:** This was a seven months, hospital based descriptive, prospective study which involved all patients presenting with LBP referred for MRI. Patient characteristics were analyzed using SPSS version 13. **Results:** One hundred and sixty five patients were recruited into the study. Their ages ranged from 20 to 80 years with a mean of 50±12.5 years. Female accounted for 87 (53%) of the cases. Most of the patients had LDDD. The disease mostly a ffected individuals in the age group above 60 years ($P<0.05$) with no sex difference. Disk herniation, central canal stenosis and nerve root compression were significantly seen in

patients with radiculopathy (P=0.00). L4/L5 & L5/S1 were the most affected. **Conclusions:** LDDD occurs in all age groups but individual aged 60 years and above are most affected. There is a relationship between radiculopathy and disk herniation, central canal stenosis and nerve root compression. The lower lumbar spine levels remain the most affected area for disk degenerative disease.

132. **Jacob M, Lee S. Intracranial cystic tumors with mural nodule: Conventional, Diffusion Tensor, perfusion MR Imaging findings. *3rd MUHAS Scientific Conference,* 2015.**

Background: Conventional MR Imaging provides anatomic information, complemented by physiological information that is provided by advanced MR Imaging techniques. Diffusion tensors Imaging (DTI) Fractional Anisotropy (FA) reflect microstructural changes of tissue and perfusion imaging provide relative cerebral blood volume. **Objective:** To evaluate the role of conventional, DTI and perfusion MR imaging in assessment of grade and type of histologically proven intraaxial cystic brain tumors with mural nodule. **Material and methods:** A hospital based retrospective cross sectional study. Conducted at Severance Hospital, Radiology department, Korea, August - October 2012. Fifteen (15) consecutive patients, who underwent pre-operative conventional, DTI and perfusion MR imaging were included in the study. **Results:** Nine (60%) and six (40%) were low grade and high grade tumors respectively. None of the low grade tumor had irregular cystic wall margin while three (50%) of the high grade tumor had, (P-value=0.044). Most 5(83.3%) of high grade tumors showed cystic wall contrast enhancement while none was found among the low grade group (P-value= 0.002).All high grade tumors showed high color values (Increased rCBV) compared to 3(33.3%) of low grade tumors (P-value=0.020). All hemangioblastomas PNET and GBM showed high color values while all Pilocytic astrocytoma, diffuse astrocytomas, ependymommas and gangliogliomas showed low rCBV color values (P-values 0.028). There was no difference in FA values between tumor grades (P- value= 0.086). **Conclusion:** Post contrast T1WI and perfusion MR imaging showed in this study to be very useful in differentiating high and low grade cystic tumors with mural nodule. FA values added no benefit to tumor differentiation. Hemangioblastoma is the only tumor with increased rCBV) among low grade tumors. Combined with post contrast T1WI, Perfusion MRI is

useful in the preoperative diagnosis and differentiation of intracranial cystic tumors with a mural nodule.

133. **Jaiswal S. Indications, Methods And Outcome Of Induction Of Labor At Muhimbili National Hospital, Dar Es Salaam, Tanzania Master of Medicine (Obstetrics and Gynecology)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Induction of labour is the process of initiating uterine contractions before the onset of spontaneous contractions in order to achieve vaginal delivery. Induction of uterine contractions leads to progressive effacement and dilatation of the cervix and birth of the baby. This includes both women with intact membranes and women with spontaneous rupture of membrane but who are not in labour. The different methods used for Induction of labour are mechanical surgical and pharmacological. Induction of labour includes a pre induction Bishop's assessment, of which scores of seven and above indicates a favorable cervix and scores less than seven indicates an unfavorable cervix. **Objectives:** To determine indications, methods and outcome of induction of labor at Muhimbili National Hospital. **Methodology:** This was a hospital based retrospective descriptive study conducted from July 2014 to January 2015, at Muhimbili National Hospital, Dar-es-salaam involving 120 pregnant women. All women who meet the inclusion criteria with indications for induction of labor with gestation age 29 weeks and above were included in the study. The variables of interest included socio-demographic characteristics, obstetric history, and medical history, indication for induction of labour,maternal and neonatal outcomes. Data were collected by means of structured data collection tool. Data cleaning was followed by analysis using SPSS version 20.Demographic data and categorical variables were summarized into frequencies, means, standard deviations, proportions and cross tabulations. Data was presented in tables. **Results:** The total number of deliveries during the period of study was 5,373 out of which total of 120 women underwent induction of labour . This gave a rate for induction of labor of 2.3%. Mean maternal age was 28.72 (SD 5.47) years and the median gestational age was 38.76 (28-42) completed weeks. The main indications for induction of labour were post term pregnancy 60 (50%), hypertensive disorders of pregnancy 38 (31.7%), premature rupture of membranes 21(17.5%).Out of these women, 74 (61.7%)

had spontaneous vaginal delivery and 46 (38.3%) had emergency caesarean section deliveries.The common complication observed in the mothers was failed induction of labour. The neonatal outcome constituted all live births. The neonates admitted in neonatal ward for further management were 10 (8.3%).Mean induction delivery interval was 16.00(SD 11.15) hours. The most common method used for induction of labor was pharmacological method using vaginal dinoprostone with intravenous oxytocin. **Conclusion:** Induction of labor is safe and beneficial as there were minimal maternal and neonatal complications. Post-dated pregnancy accounted for the majority of indications for induction of labour at term at MNH. **Recommendation:** Further studies should be done to compare the best method of induction of labour. To encourage more induction of labour together with vigilant monitoring of women during the process of induction and during labour, including a cardiotocograph.

134. **Janabi MY, Munseri P, Aboud S, Sandstrom E, Bakari M. Low prevalence of detectable serum cardiac troponin I among healthy Tanzanian adults: observational study. *Tanzania Journal of Health Research*. 2015. *17*(1).**

Background: Cardiac troponin test is used in detecting various heart disorders. The objective of this study was to establish normal reference levels for serum cardiac Troponin I which could be utilized for selection of vaccines and determine any electrocardiogram (EKG) changes among healthy volunteers. **Methods:** A total of 263 healthy blood donors from Dar es Salaam, Tanzania were included in this sub-study. A thorough medical history and physical examination to rule out any major chronic disease like heart failure, chronic kidney diseases, diabetes mellitus and HIV was undertaken. Ten mL of blood sample for the purpose of establishing normal reference values for Troponin *I* assessment and parallel EKG was performed to all participants. **Results:** Of the 263 subjects, males were156 (59.3%) and females were 107 (40.7%). Median (range) age was 34 years old. The manufacture's reference level for serum Cardiac Troponin *I* was 0.00-0.39 µg/L. Serum Cardiac Troponin *I* was detected in two blood donors (0.76%). However, their Troponin *I* levels were within the manufacturer's normal range (0.01-0.36 µg/L). Clinically both subjects were healthy and their EKG tracing were unremarkable. **Conclusions:** Our study has shown that among healthy subjects, detectable serum cardiac Troponin *I* is a rare finding. The manufacturer's range is

applicable in our setting and can be used in the ongoing vaccine trial. The significance of minimally elevated serum cardiac Troponin *I* may represent a subclinical cardiac injury and have important clinical implications, a hypothesis that should be tested in future longitudinal outcome studies.

135. **Jande M, Kongola G, Liwa A, "Community Awareness of Adverse Effects of No steroidal Anti-inflammatory Drugs in Ilala Municipality, Dar es Salaam."** ***East and Central African Journal of Pharmaceutical Sciences.*** **2015; 16(3): 81-85.**

A cross sectional descriptive study was conducted within Ilala Municipality in Dar es Salaam, Tanzania. A structured questionnaire was used for data collection. A total of 196 community members were recruited into the study. The participants were asked to provide information on what drugs they took when they had pain and if they knew any adverse effects associated with the use of non-steroidal anti-inflammatory drugs. They were also asked if they had been given any education by health personnel on the adverse effects of non-steroidal anti-inflammatory drugs. Fifty two percent of the participants responded that when they had pain, they bought pain killers from pharmacies while 42% said they would go to hospital for treatment. About 4% drank a lot of water when they had a headache, while 1% performed massage at the site of pain. One percent visited traditional healers to seek treatment for the pain. Only 8% of the study participants knew some adverse effects caused by non-steroidal anti-inflammatory drugs. Hence, there is a need for health personnel to educate patients on the potential adverse effects of the non-steroidal anti-inflammatory drugs.

136. Jande M, Liwa A, Kongola G. "Assessment of Patient Satisfaction with Pharmaceutical Services in Hospital Pharmacies in Dar es Salaam, Tanzania." ***East and Central African Journal of Pharmaceutical Sciences.*** **2015; 16(1): 24-30.**

Exit survey was conducted at four hospitals in Dar es Salaam, Tanzania, where 401 outpatients (51% males and 49% females) were randomly recruited in the survey. A structured questionnaire was used to obtain the required information from the patients and the data was analyzed using Epi-Info version 6 software. The presence of a polite pharmacist at a particular pharmacy attracted many patients (85.8%). Availability of a reputable medical practitioner at the hospital was another reason for many patients

(55.6%) going to the hospital pharmacy. A number of patients (46.3%) went to particular hospital pharmacies to obtain their medicines because of good services in those facilities. Dissatisfied respondents (23.7%) rated the waiting time to obtain the medicines as too long. This was followed by unavailability of prescribed medicines (18.2%) and poor facilities in the waiting room. Quality of services at the hospital pharmacies were rated at 46%. Patients felt that the waiting time and the availability of medicines could be improved.

137. **Jansson C, Stavreus-Evers A, Volgsten H. Swedish validation of the Impact of Miscarriage Scale (IMS) after miscarriage. *3rd MUHAS Scientific Conference,* 2015.**

Background: Approximately 15-20% of women report that they have experienced miscarriage, expulsion of a fetus before 22 weeks of gestation. Most women show grief after a miscarriage, but the understanding on how women experience miscarriage is still scarce. The Impact of Miscarriage Scale (IMS) was developed to study the experience after miscarriage. **Aim:** The objectives were to validate the IMS for Swedish conditions and to measure women's and men's experience after miscarriage. **Methods:** The study was performed at the gynecological ward at Uppsala University Hospital, Sweden. A total of 61 women were included in the study. In addition, 39 Swedish couples were included for comparison between women and men. All women and men filled in a questionnaire on general health, fertility and IMS. The IMS measures the experience of a lost child, personal significance, devastating event and isolation after miscarriage. **Results:** Swedish women scored 30 % lower in all four factors, but with the same pattern, than women from USA, low score showing better personal experience. The data showed that men had significant lower score for personal significance, devastating event and isolation than women, while the experience of having lost a child was the same for men and women. **Conclusion:** The difference between Sweden and USA might be due to factors related to culturaldifferences. It can also be noticed that 15 years has passed from the American study to the recent Swedish study. The data show that that the psychological wellbeing of the men is also reduced after their partners' miscarriage.

138. **Joachim A, Munseri P, Nilsson C, Bakari M, Aboud S, Lyamuya E, Moshiro C, Robb M, Marovich M, Earl P, Moss B, Buma D, Janabi MY, Wahren B, Mhalu F,**

Ferrari G, Sandstrom E, Biberfeld G. A Late Third HIV-MVA Vaccination Boosted Strong and Potent Immune Responses in Tanzanian Volunteers Previously Immunized with HIV-DNA and HIV-MVA. *3rd MUHAS Scientific Conference, 2015.*

Background: A successful vaccine against HIV requires effective and long-lasting cellular and humoral immune responses. It's still uncertain on how long vaccine induced immunity lasts and how best the immunity can be sustained. **Aim:** To explore the duration of immune responses and the effect of a third HIV-modified vaccinia Ankara (MVA) boost in HIV-DNA and HIV-MVA vaccinees. **Method:** Twenty healthy volunteers previously primed with HIV-DNA plasmids encoding HIV-1 subtypes A, B, and C at months 0, 1 and 3 and boosted with HIV-MVA expressing CRF01_AE at months 9 and 21 were given a third HIV-MVA boost three years after the 2nd HIV-MVA. Samples were tested before and at 2-4 weeks post the 3rd HIV-MVA boost. Cellular responses were assessed using IFN-γ ELISpot and lymphoproliferation assay (LPA). Binding antibodies to gp140 were tested by enzyme-linked immunosorbent assay. Antibody-dependent cellular cytotoxicity (ADCC) antibodies were tested using HIV-1 recombinant gp120-coated and infected cells. Anti-vaccinia neutralizing antibodies were determined by plaque-reduction assay.**Method:** Three years after the 2nd HIV-MVA, 15/19 (79%) vaccinees had IFN-γ ELISpot responses, 11 (58%) to Gag and 6 (32%) to Env. Two weeks after the 3rd HIV-MVA, 19/20 (95%) vaccinees had IFN-γ ELISpot responses, 17 (85%) to Gag and 16 (80%) to Env whereas 15/16 (94%) had positive LPA response. Binding antibody to gp140 subtype C titers were significantly higher after the third HIV-MVA p=0.001. ADCC responses to subtype-E gp120-coated cells were detected in 16/19 (84%) vaccinees before and in 18/19 (95%) after the 3rd HIV-MVA where 14/20 (70%) vaccinees had ADCC activity to CM235 infected cells. Anti-vaccinia neutralizing antibodies were detected in all vaccinees before the 3rd HIV-MVA. **Conclusion:** Anti-HIV immune responses were detectable three years after the 2nd HIV-MVA immunization.A late third HIV-MVA vaccination boosted strong and potent anti-HIV cellular and humoral immune responses in previously HIV-DNA and HIV-MVA immunized volunteers despite pre-existing immunity to vaccinia.

139. **John S. Short Term Outcome of Patients with Clavicle Fracture Treated At Muhimbili Orthopedic Institute, Dar es Salaam. Master of Medicine (Orthopedics and Trauma)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Fractures of the clavicle are common, occurring in 2-5% of all fractures, and 35% of shoulder girdle fractures in the United States. The preponderance of fractures occurs in males by a more than 2:1 ratio. Though these fractures are common and often I reviewed, but still little evidence to support different treatment options is present. For the most part they have been historically treated conservatively with acceptable F results. Operative or non operative treatment is the applied treatment modality at MOI, but no data available on their outcome. **Objective:** To evaluate the short term outcome of patients with clavicle fracture treated at Muhimbili Orthopedic Institute 2014. **Methodology:** A hospital based prospective cohort study was carried out on patients with clavicle fractures managed at Muhimbili orthopedic Institute (MOI) from March 2014 to February 2015. A total of 2859 patients with different fractures were attended during the study period out of these 137 (4.8%) patients had clavicle fractures, ninety patients met the study inclusion criteria of these 6 were lost to follow up, leaving 84 patients for evaluation. These patients were assessed by a structured questionnaire administered by a researcher. The assessment of patients was done at 4th week post treatment, then at at and 12* week, constant shoulder score was used to assess. The obtained data was analyzed by SPSS version 20. **Results:** In this study 84 patients with clavicle fractures were involved and analyzed, of these 68 (81%) were men and I6 (19%) women, male: female ratio 4.25:1. Proportional of clavicle fractures attended during the study period was 4.8%. RTI was found to be the most cause of clavicle fractures followed by falling from height and sports related I injuries. Taking classification of clavicle fractures into consideration 75% patients had middle 1/3 Eactures and 25% had lateral 1/ 3 clavicle fractures. The average constant shoulder score at the I2"` week after treatment was 14.31 (range 3 to 30), 81% of fractures achieved a 'good' to 'excellent' outcome at the 12^{th} week of follow up. Those who were treated operatively (35.7%) had better function outcome than non operative treatment. However one patient treated none operatively had significant functional impairment even at 12m week of follow up due to nonunion. **Conclusion:** Clavicle fractures are a significant problem at MOI, with trauma due to road traffic injury being

the main cause followed by falling and sporting. The middle I/3 is mostly affected. The functional outcome for patients who suffer clavicle fracture is relatively good, (S l% had a good to excellent at 12week) results.

140. **Jones C, Donath ST, Mwelecele NM. "Evidence of continued transmission of Wuchereriabancrofti and associated factors despite nine rounds of ivermectin and albendazole mass drug administration in Rufiji district, Tanzania."** ***Tanzania Journal of Health Research.*** **2015.** ***17(2)***

Backgrounds: In most sub-Saharan Africa, the National Lymphatic Filariasis Elimination Programme (NLFEP) is based on annual mass drug administration (MDA) with ivermectin and albendazole. In order to interrupt transmission, 4–6 rounds of MDA are required with at least 60–70% minimum effective coverage. Children born since the introduction of the MDA programme are recommended for assessing the interruption of transmission. The objective of this study was lymphatic filariasis transmission status after nine rounds of MDA in Rufiji district, Tanzania. **Methods**: This cross sectional survey involved 270 heads of household. Parents or guardians were interviewed on behalf of the schoolchildren about their participation in MDA programme. Status of LF prevalence was assessed by measuring *WuchereriaBancroft* circulating filarial antigens (CFA) in blood samples from standard one school children (6 – 9 years) using immunochromatographic test cards. **Results:** A total of 413 standard one schoolchildren were tested for CFA; 59 (14.3%) had CFA. Two thirds (66.8%) of the children did not participate in 2011 MDA round. Prevalence of CFA was significantly lower in younger (6.4%) than older children (40.4%) ($p<0.05$). Participation in the last (2011) MDA did not significantly change the prevalence *W. Bancroft* CFA ($\chi^2 = 0.723$, $p=0.4$). The recorded MDA coverage for 5 years including 2011 was above the 60–70 % minimum effective coverage. The community reported coverage was 40.4% for last MDA (2011), for previous MDAs was 53.0%; being far below the minimum effective coverage. Though the large majority (97.0%) of households had heard of LF, only about half (57.0%) knew it was transmitted by mosquitoes. Less than a half (43.6%) of households were aware of the adverse effects of LF, therefore motivated to participate in MDA. **Conclusion:** The findings indicate that LF transmission has continued in Rufiji district despite nine rounds of MDA. Low compliance to MDAs due to community and

programmatic factors were responsible for the continued LF transmission. Detailed entomological studies are required to establish LF transmission dynamics and the programmatic factors associated with MDA implementation in the area.

141. **Jones C, Tarimo D, Malecela M. Evidence of continued transmission of Wuchereria bancrofti despite nine rounds of Ivermectin and Albendazole mass drug administration in Rufiji district, Tanzania. *3rd MUHAS Scientific Conference, 2015.***

Background: In most sub-Saharan Africacountries, the National Lymphatic Filariasis Elimination Programme (NLFEP)is based on annual mass drugadministration (MDA) with Ivermectin and Albendazole. In order to interrupt transmission, 4–6 rounds of MDA are required with at least 60–70% minimum effective coverage. Children born since the MDA began are recommended for assessing interruption of transmission. We present findings of LF transmission status after 9repeated MDA rounds as implemented by the TanzanianNLFEP in Rufiji district and associated programmatic factors. **Methods**: A cross sectional survey of 270 heads of household was carried out to assessMDA coverage and programmatic factors that influence MDA uptake. Status of LF transmission was assessed by measuring *W.bancrofti* circulating filarial antigens (CFA) in blood samples from413 standard one pupils(6 – 9 years) using ICT cards.Parents or guardians were interviewed on behalf of the pupils about their participation in MDAs. **Results** A total of 413 standard one pupils were tested for CFA; 59 (14.3%) hadCFA. Two thirds (66.8%) of children did not participate in 2011 MDA round. Prevalence ofCFA was significantly lower in younger (6.4%) than older children (40.4%)($P < 0.05$).Participation in the last (2011) MDA did not significantly change the prevalence *W.bancrofti* CFA ($\chi 2 = 0.723$, $P = 0.4$).The recorded MDA coverage for 5 years including 2011 was above the 60 – 70 % minimum effective coverage. The community reported coverage was 40.4% for last MDA (2011), for previous MDAs was 53.0%; being far below the minimum effective coverage. Though the large majority of households (97.0%) had heard of LF, only about half (57.0%) knew it was transmitted by mosquitoes. Less than a half(43.6%) of householdswere aware of the adverse effects of LF,therefore motivated to participate in MDAs. **Conclusion:** LF transmission has continued despitenine rounds of MDA.Low compliance to MDAs due to community and programmatic factors were responsible for

the continued LF transmission. Detailed studies are required to establish LF transmission dynamics and the programmatic factors associated with MDA implementation in the area.

142. **Jones C, Tarimo D, Malecela MN. Evidence of continued transmission of Wuchereria bancrofti and associated factors despite nine rounds of ivermectin and albendazole mass drug administration in Rufiji district, Tanzania.** ***Tanzania Journal of Health Research*****. 2015; 17(2).**

Background: In most sub-Saharan Africa, the National Lymphatic Filariasis Elimination Programme (NLFEP) is based on annual mass drug administration (MDA) with ivermectin and albendazole. In order to interrupt transmission, 4–6 rounds of MDA are required with at least 60–70% minimum effective coverage. Children born since the introduction of the MDA programme are recommended for assessing the interruption of transmission. The objective of this study was lymphatic filariasis transmission status after nine rounds of MDA in Rufiji district, Tanzania. **Methods:** This cross sectional survey involved 270 heads of household. Parents or guardians were interviewed on behalf of the schoolchildren about their participation in MDA programme. Status of LF prevalence was assessed by measuring Wuchereria bancrofti circulating filarial antigens (CFA) in blood samples from standard one school children (6 – 9 years) using immunochromatographic test cards. **Results:** A total of 413 standard one schoolchildren were tested for CFA; 59 (14.3%) had CFA. Two thirds (66.8%) of the children did not participate in 2011 MDA round. Prevalence of CFA was significantly lower in younger (6.4%) than older children (40.4%) ($p<0.05$). Participation in the last (2011) MDA did not significantly change the prevalence W. bancrofti CFA ($\chi 2 = 0.723$, $p=0.4$). The recorded MDA coverage for 5 years including 2011 was above the 60–70 % minimum effective coverage. The community reported coverage was 40.4% for last MDA (2011), for previous MDAs was 53.0%; being far below the minimum effective coverage. Though the large majority (97.0%) of households had heard of LF, only about half (57.0%) knew it was transmitted by mosquitoes. Less than a half (43.6%) of households were aware of the adverse effects of LF, therefore motivated to participate in MDA. **Conclusion:** The findings indicate that LF transmission has continued in Rufiji district despite nine rounds of MDA. Low compliance to MDAs due to community and programmatic factors were responsible for the continued LF transmission. Detailed

entomological studies are required to establish LF transmission dynamics and the programmatic factors associated with MDA implementation in the area.

143. **Justin R, (et al). "Combining ability of some sorghum lines for dry lands and sub-humid environments of East Africa."** ***African Journal of Agricultural Research*****. 2015; 10(19): 2048-2060.**

Sorghum (*Sorghum bicolor* L. Moench) is a major food crop grown in dry lands and sub-humid areas of East Africa. A study was conducted between 2010 to 2012 in dry lands (Miwaleni, Kiboko) and sub-humid (Ukiriguru) environments to identify parents for hybrid production. It involved 121 lines from ICRISAT and 121 hybrids developed from 36 male sterile lines and 42 restorer lines in a line × tester crossing. Experiments were planted in an alpha lattice design with three replications. Analysis revealed significant ($P < 0.05$) differences between parents and between crosses for yield and yield components, indicative of potentiality for exploitation. Line IESV23010 expressed best (-6.5) general combing ability (*GCA)* for days to 50% flowering (DAF). Highest general combiner for height was -55.4 expressed in ICSR24007 and for yield was 382.8 expressed in IESV92156DL. The crosses SDSA4×ICSR43 and SDSA4×ICSR59059 exhibited high and significant specific combining ability (*SCA*) for DAF. Lines IESB2 and ICSB44 were suited to sub-humid, whereas BTX623, ICSB15 and ICSB6 to dry lands environments. Testers IESV91104DL, IESV91131DL, ICSR93034 were well suited to dry lands whereas KARI-MTAMA1 and IESV23019 to sub-humid environments. The parents identified could be used to produce hybrids and varieties for the dry lands and sub-humid environments.

144. **Kaale A. Piloting Implementation of Who Surgical Safety Checklist among Operating Theatre Staff at Muhimbili National Hospital, Dar Es Salaam, Tanzania. Master of Medicine (General Surgery)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Safety in surgery requires the reliable execution of multiple necessary steps in care, not just by the surgeon but by a team of health-care professionals working in concert for the benefit of the patient. Quality-improvement initiatives are beginning to lead to improvements in the quality of care and coordination amongst teams in the

operating room. There are about 1500-2000 wrong surgeries reported annually in the USA. In a survey of 1050 hand surgeons, 21% reported performing a wrong site surgery through their life time career. In Tanzania there are unpublished reports of wrong site/patient surgeries such as brain and knee surgery interchanged- MOI 2007, Surgery on the left ear instead of right – MNH, 2013 and instruments and materials such as scalpel and gauze left in the abdomen. To address the problem of safety in surgery in 2007-2008 WHO developed a guideline for surgical safety Consensus on safety in practice was achieved around four areas; Team work, Anesthesia, Prevention of surgical site infection and measurement of surgical services. A checklist was developed in 2009 and it consisted of sign in, time out and sign out. **Objectives:** To pilot implementation of WHO surgical safety checklist in the main Surgical suites of Muhimbili National Hospital. **Methodology:** A nine months, hospital based quasi experimental prospective before-after-study design was employed in the main OR at MNH. All operating room staff and patients in elective surgery in the surgical department were subjected to the study. Subjects were interviewed through structured questionnaire prior to intervention and evaluation was done post intervention to determine awareness, attitude and practice of surgical safety checklist .This was done first in the study. The checklist was officially introduced and staffs were sensitized. Checklist was available in all main theatres notice boards, and was placed in the patient's file. The nurse in charge of each operating room for that day was instructed to make sure all patients have their checklist in place and it is deployed. For the first month kept sensitized staff to the use of the surgical safety checklist. Six months later we evaluated compliance of surgical safety checklist and another structured questionnaire was given to the staff to assess the attitude and awareness of staff on the WHO surgical safety checklist post implementation and factors affecting compliance in our settings. **Results:** A total of 111 theatre staff were interviewed on knowledge, attitude and practice of World Health Organization Surgical Safety Checklist. Thirty eight were from anesthesia department, 27 were nurses and 46 doctors from the surgery department. Eighty four percent were aware of WHO SSC and 93.6% thought it was important to use WHO SSC. The technical staff thought the checklist is not regularly used in our setting because of lack of knowledge on how to use WHO SSC, negligence and negative attitude towards the use of WHO checklist, while

others thought it was a waste of time. According to MNH registry 895 elective surgeries were done in randomly selected firms from September 2014-March 2015 and only 5.5% had a filled WHO SSC. Difficulties/Barriers that staffs were facing when using a WHO SSC were lack cooperation amongst themselves, staff thinking it was a waste of time and language barrier. **Conclusion:** Only 5.5% of all patients who underwent surgery had a filled WHO SSC form in their files hence the institution should consider staff feedback as a means of enhancing the sustainability and implementation of WHO SSC. We need to train and distinguish gaps in the system that will help change and improve patient safety.

145. **Kaale E, Höllein L, Holzgrabe U. Development and validation of a generic stability-indicating MEEKC method for five fluoroquinolone antibiotics. *Electrophoresis*. 2015; 36(21-22):2736-44.**

In this paper, a reliable stability-indicating generic MEEKC method for the analysis of five commonly used fluoroquinolones (FQs) has been developed and optimized by a central composite circumscribed experimental design. The separation was carried out using a fused silica capillary (60.2 cm total length) and a microemulsion (ME) composed of 81.75% (w/w) of a 125 mM NaH2PO4 solution having a pH of 2.75, 2.65% (w/w) SDS, 1.00% (w/w) n-octanol, 6.60% (w/w) n-butanol and 8.00% (w/w) 2-propanol. A voltage of 28 kV was applied in a reverse polarity mode. A linear relationship was established from 0.04 to 0.48 mg/ml with R2 values higher than 0.98 for all five FQs. Both repeatability and intermediate precision were less than 3% and accuracy ranging from 97 to 100%. Of note, ciprofloxacin impurity A and ofloxacin impurity A could be separated from the respective drug substance in a single run which cannot be achieved using the official HPLC method from the European Pharmacopoeia. Forced degradation of all FQs under heat, in acidic and alkaline medium, in the presence of oxidizing agents and under neutral hydrolysis conditions was investigated. The highest yield of degradation products was observed using oxidative hydrogen peroxide. Hence, the proposed MEEKC method can be used for the quantitative determination of the five FQs and their potential impurities within a total runtime of 20 min.

146. **Kabadi L, Munseri P, Buma D, Massawa T, Bakari M, Sandstrom E.Experiences and challenges in handling investigational products for an HIV vaccine clinical trial in dar es salaam, Tanzania. *3rd MUHAS Scientific Conference,* 2015.**

Background: MUHAS has been conducting HIV vaccine clinical trials since 2006. These are HIVIS03, TaMoVac01 and TaMoVacII trials. Handling investigational products (IP), which were HIV-DNA, HIV-MVA and rgp140/GLA, to internationally accepted standards could pose a challenge in our settings.**Objectives**: To describe the experiences gathered the challenges encountered in ensuring IP's are kept at required optimal temperatures.**Methods:** All IP's were kept in the MUHAS Microbiology/Immunology laboratory and were transferred to the clinic located at MNH on vaccination day upon arrival of the volunteer. Tracking temperature charts and reported temperature excursion for HIVIS03, TaMoVac01 and TaMoVac02. Temperature was monitored by using a thermometer, charting every morning and evening with RGP 140 automatic flash thermometer was used to record temperature every after five minutes.**Results:** All along the HIVIS03 trial the storage temperature ranges for the HIV-DNA, HIV-MVA vaccines were within the optimal ranges of-25 to-15 and -90 to-70 ^{0}Crespectively. A single occasion of a malfunctioning deep freezer necessitated an immediate shift of MVA to another back-up freezer. This was without any consequence to the IP temperature. The TaMoVac01 trial, storage temperatures for the HIV-DNA and HIV-MVA vaccines were within the required ranges of -25 to -15 and -90 to -70 ^{0}C respectively. Similarly, the storage temperatures for the rgp140 and GLA-AF were within the optimal ranges of+8and +2 respectively. The TaMoVac-II trial, storage temperatures for the HIV-DNA and HIV-MVA vaccines were within the required ranges of -25 to -15 and -90 to -70respectively. The storage temperatures for rgp140 and GLA-AF were within optimal ranges of +8 and +2respectively. In all the trials, the temperatures of IP's could be optimally maintained up to their administration to volunteers.**Conclusion:** It was possible to maintain optimal temperatures for IP's throughout trials. Having appropriate storage facilities at the Clinical site could have simplified trial.

147. **Kabamanya S, Abade A, Aboud S. Seroprevalence of HIV, HBV, HCV and syphilis and associated risk factors in the fishing community in Mwanza, Tanzania. *3rd MUHAS Scientific Conference, 2015*.**

Background: Fishing communities have been identified among the vulnerable groups at high risk for acquiring sexually transmitted infections. This vulnerability is mainly due to their mobility, time away from home, access to cash income and commercial sex at landing sites. Data on prevalence and associated factors for sexually transmitted infections in fishing communities is limited. **Aims**: To determine the seroprevalence of human immunodeficiency virus infection (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV) infections and syphilis and the associated risk factors in the fishing communities. **Methods**: This was a cross sectional community-based study conducted at Mwaloni landing site along the shores of Lake Victoria basin in Mwanza region conducted between October 2012 and March 2013.Information on socio-demographic characteristics and factors associated with acquisition of HIV, HBV, HCV and syphilis were obtained using a structured questionnaire. Blood samples were collected and screened for HIV, HBV, HCV and syphilis. Multivariate logistic regression was performed to determine the risk factors for acquisition of infections. A p-value of ≤ 0.05 was considered statistically significant. **Results:** A total of 448 individuals were included in the study. The mean age was 33.5 years (range 18-70 years).Many participants (61.2%) were malesand (70.5%) had primary education. Of participants 235 (52.5%) were fish traders. The prevalence of HIV, HBV, HCV and syphilis were found to be 9.8%, 9.2%, 5.6% and 14.3%, respectively. Regular alcohol consumption was found to be a risk factor for acquiring HIV infection (OR=4.4, 95%CI=1.7-11.8) in the fishing community. Study participants who had used the health services in the past one year were more likely to have HIV infection (OR=3.8, 95%CI=1.9-7.4) Health services were accessible within a distance of five kilometres and 29.5% of the study respondents had used these services in the past twelve months. **Conclusions:** The prevalence of STIs in the fishing community was found to be higher compared to the prevalence figures of STIs in Tanzania for the general population. Regular alcohol consumption was found to be a risk factor for acquiring HIV in the fishing community. Utilization of health services in the fishing community was found to be low.

148. **Kabululu H, Ngasala B, Daimon L. Diagnostic Performance of Screening Methods for Urinary Schistosomiasis In A School- Based Antihelmithic Programme In Mbozi District Mbeya Region. *3rd MUHAS Scientific Conference, 2015.***

Background: Diagnostic performance of screening methods varies in different endemic zones, age groups and sexes especially when there is low prevalence. **Main Objective:** To evaluate the diagnostic performance of screening methods for urinary schistosomiasis after wide scale use of praziquantel in a school based antihelminthic control programme in Mbozi District. **Methods:** A cross-sectional study was conducted from March to June, 2013. A total of 429 participants from standard I – VII were chosen proportionally from twelve schools which were obtained through multistage cluster random sampling. The diagnostic performance of screening tests were compared with microscopic examination of urine for S. haematobium egg (filtration method, which was regarded as the gold standard) **Results:** Chemical reagent strip for haematuria was the most sensitive of all screening methods assessed with sensitivity of (78.8%) also with high NPV (97.8%), followed by self reported haematuria (51.9%), and visual examination of urine was least sensitive of all (42.4%). In terms of specificity, self reported haematuria was the most specific (91.7%) with positive predictive value (34.9%). **Conclusion:** Chemical reagent strip and history of haematuria are still useful diagnostic tools for targeting Praziquantel-MDA to school children in schistosomiasis endemic areas.

149. **Kabyemela E, Fried M , Kurtis J , Moses G, Muehlenbachs A, Duffy P. Thalassemia, and red cell growth factors, but not placental malaria, contribute to fetal anemia risk in Tanzania.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Fetal anemia is common in malarious areas, and is a risk factor for anemia during infancy. Placental malaria (PM) and red cell abnormalities have been proposed as possible etiologies, but the relationship between PM and fetal anemia has varied in earlier studies, and the role of red cell abnormalities has not been studied. **Aim:** We set out to determine maternal and fetal factors that contribute to the risk of fetal anemia in a high malaria transmission area in Tanzania. **Methods:** We determined PM status, newborn red cell abnormalities, and maternal and cord blood levels of iron regulatory proteins, erythropoietin (EPO), cytokines and cytokine receptors. We examined the relationship between these factors and fetal anemia. **Results**: Fetal anemia was present in 46.2% of the neonates but was not related to PM. Maternal iron deficiency was common (81.6%) and interacted with gravidity to modify risk of fetal anemia, but was not directly related to risk. Among offspring of iron-deficient women, a+-thalassemia, increasing IL 6 and

decreasing TNF-RI levels in cord blood, increased the odds of fetal anemia, but these effects varied with gravidity. The EPO response to fetal anemia was low or absent, and was significantly decreased in newborns.**Conclusion:** Neither PM nor maternal iron deficiency are directly related to fetal anemia in an area of intense malaria transmission Instead, fetal red cell abnormalities (thalassemia) and soluble factors affecting red cell production (low erythropoietin, high IL-6) influence risk, and their contribution to risk varies according to the iron status and gravidity of the mother. In order to develop interventional strategies further studies are needed to elucidate the factors that affect fetal cytokine balance and subdued EPO response to decreasing hemoglobin levels in affected newborns.

150. **Kaduri SA. Comparing the performance of provider's clinical impression, the revised trauma score, the Kampala trauma score, and Glasgow coma scale, for predicting in-hospital mortality amongst road-traffic-injured patients presenting to the emergency department At Muhimbili National Hospital. Master of Science (EmergencyMedicine)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Road traffic accidents remain the prominent cause of death by injury and the ninth cause of all deaths globally, causing over 50 million injuries and an estimated 1.3 million deaths annually. The Revised Trauma Score (RTS), the Kampala Trauma Score (KTS) and the Glasgow Coma Scale (GCS) are among the most usedtoolsemployedtoanalyze andstratifythe severely injured including those associated with RTIs. The performance of some of these trauma-scoring systems at predicting in-hospital mortality has been characterized in some developing countries with varied outcomes. There is, however, limited data on the performance of the trauma scoring systems (the RTS, KTS and the GCS) and the provider's clinical impression at predicting the in- hospital mortality among trauma patients seen at acute intake areas of hospitals in the Low- Income Countries such as Tanzania. **Objective:** To determine the performance of providers' clinical impression on the severity of injury, the GCS, the RTS, and the KTS, at predicting in-hospital mortality amongst road traffic injured patients presenting to the Emergency Department at Muhimbili National Hospital (MNH). Methodology: The study data were analyzed with a multiple linear regression model with

a14day (2week) mortalityastheoutcomeandtheproviders'clinicalimpression (mild, moderate, and severe), KTS, GCS, and RTS as predictors. Providers' clinical impression "severe" was dropped from the model due to very high correlation with other variable(s) included. Odds ratios were calculated from a logistic regression analysis of the revised model. We then created Receiver Operating Characteristic curves for the providers' clinical impression, KTS, GCS, and RTSandreport the corresponding area under the curvesforpredictionofmortalityat 14days. These analyses were performed with Stats Direct, version 3.0.133 (Stats Direct LTD, Cheshire, UK). **Results:** A total 329 road traffic injured patients were enrolled in the study. There were 266(80.9%) males and 63(19.1%) females. The female to male ratio was 1:4 with a mean age of 33.4(±12.8). Ninety nine percent of the patients were admitted. The median length of stay was 105 minutes (IQR70 – 150 minutes). The overall mortality was 8.2%. Providers' clinical impression on the severity of injury seemed to perform equally well as the KTS. The GCS and the weighted RTS were the least accurate by the ROC/AUC analysis. However, a significant limitation to the study is that none of the patients had a RTS of < 4, which is considered severe injury. Also, none had a KTS < 11 and only five had a GCS of < 8. This may be attributable to a smaller sample size and the results therefore may not be statistically significant. The optimal cut off points used in this study to discriminate between those who died and those survived at two weeks were: providers' clinical impression = "Moderate", KTS = 14, GCS = 13 and weighted RTS = 5.881. **Conclusion:** In a population of road traffic injured patients presenting to the Emergency Department at a tertiary teaching hospital in a limited resource setting, the providers' clinical impression on severity of injury performed equally well as the KTS at predicting the in-hospital mortality. The GCS and RTS were not accurate. However, this performance amongst the measures used to evaluate severity of injury and the in-hospital mortality cannot be generalized.

151. **Kahabuka FK, Mugonzibwa EA, Mwalutambi S, Kikwilu EN. Diseases and conditions falsely linked with "nylon teeth" myth: a cross sectional study of Tanzanian adults. *Tanzania Journal of Health Research*. 2015; 17(2).**

Background: Different communities associate children's ailments with their developmental milestones and they have beliefs on a variety of causes of the ailments.

The objective of this study was to determine the diseases and conditions falsely linked with “nylon teeth” myth among Tanzanian adults.**Methods:** A cross sectional cluster study was conducted in five zones of Tanzania. A total of 200 individuals from each region stratified by age and sex were targeted. Study subjects included adults of child bearing age, elders, health care workers, teachers and traditional healers. A structured questionnaire was used to inquire for the demographic characteristics of the participants as well as diseases and conditions falsely linked with the nylon teeth myth.**Results:** A total of 1,359 people participated in the study. Of the total participants, 262 (19.3%) reported nylon teeth myth to exist in their locality. The main symptoms that were falsely linked with nylon teeth myth were diarrhoea (83.5%), long standing fevers (81.2%) and difficult in sucking (76.7%). Respondents less likely to falsely link nylon teeth myth with various diseases and conditions were residents in southern regions. They linked nylon teeth myth with diarrhoea (OR=0.29, CI=0.14-0.63), fevers (OR=0.38, CI=0.18-0.80), cough (OR=0.38, CI=0.16-0.94), stunting (OR=0.24, CI=0.10-0.58), excessive crying (OR=0.19, CI=0.09-0.40) and difficult sucking (OR=0.35 CI=0.17-0.70). Males linked the myth with stunting (OR=0.57, CI= 0.34-0.98) and excessive crying (OR 0.431, CI=0.24-0.78). The more educated respondents linked the myth with long standing cough (OR=2.068, CI=1.11-3.84) and stunting (OR=2.07, CI=1.10-3.76). The health care workers less likely linked nylon teeth with excessive crying (OR=0.37, CI=0.15-0.96) and difficult sucking (OR=0.29, CI=0.11-0.81).**Conclusion:** Diarrhea, fevers and difficult in sucking were the symptoms most frequently linked with nylon teeth myth. Linking of the symptoms and the myth was more common among respondents from northern regions, non – medics, males and the more educated ones. Educational and behavioral change intervention against the diseases frequently falsely linked with nylon teeth myth is recommended to control the myth.

152. **Kahabuka FK, Mwangosi IE. Emergency visits at a paedodontic clinic in Tanzania. *Tanzania Dental Journal*. 2015. 8(1): 21-23**.

In T-arwnia.Most medical and denl3l treatment is offered to patients on demand without prior appointmentComequendy, roodnedental treatment is dominated by toodI extraction. The aim of this study W3Ii to emblish causes of 'emergency vIsics', at thepaedodontic dink: In Dar es Salaam, Tarwnia. The study W3Ii carried out between December 1993

and F~ 1994. All thepatients who visited the denl3l dink: on emeqencybases wereindudedin the study. Special ronns were disuibuted to four denmcsto record patients' pardcubrs, chief implants, and provisional diagnmis. Fifty nine emeqency patients attended a paedodontlc dink: during the study period. The leading cause of the emergency visits W3Ii tr.IUma (49%), followed by Infecdons (24%) and tumours (17%). Fbrther investigation on this problem for longer periods will be valuOlbie before proposing definite prevendve measures.

153. **Kalala W, Mwakigonja S, Maregesi Z, Msengwa R. Mahunnah. Brine Shrimp Lethality and Acute Oral Toxicity of Commiphora swynertonii Burrt Exudate. 2015.**

Commiphora swynertonii exudates is used by people in Central and Northern Tanzania for treatment of various ailments, including upper respiratory infection and urinary tract infections, as well as anthelminthic and insecticide. Its antimicrobial and acaricidal activities have been demonstrated, but its toxicity has not been studied. The aim of the study was to determine its toxicity using brine shrimp test and oral administration of various doses of the exudates. Brine shrimp nauplii were subjected to various concentrations of the exudates in simulated sea water and by noting the mortalities against each concentration, the median lethal concentration (LC50) was determined using Fig P computer program. As for acute toxicity test, mice were administered with various doses of the exudates by gastric intubation and observed for signs of physical and behavioral changes as compared to mice which were given a placebo. After a 14-day observation period, the mice were sacrificed, and their internal vital organs (heart, liver, lungs, kidneys and spleen) checked/examined for weights / histological changes as compared to the mice which were given placebo. The Brine Shrimp test exhibited moderate toxicity of LC50=15.30 µg/mL. In Acute Toxicity test, no changes in mice were observed at doses below 2000 mg/kg body weight. Some behavioral and physical changes were observed at 3000 mg/kg and some mice died at 4000 mg/kg. The mouse which was dosed 5000 mg/kg died after 3 hours. The LD50 was 3400mg/kg. Histological analysis revealed no significant changes below 2000mg/kg doses. But at 3000 mg/kg and beyond, major changes, including organ degeneration, vasocongestion and behavioral changes began to manifest. Liver and lungs were severely affected at 4000 mg/kg dose

and pneumonitis was advanced as the cause of death for the mice that died. We conclude that at doses below 2000 mg /kg, CS exudates are relatively safe. We also recommend further studies to be carried out on CS exudates for anticancer activity.

154. **Kalinga EL. Nurses' Knowledge And Practice In Caring For Critically Ill Patients In Temeke, Mwananyamala Y And Amana Hospitals, Dar Es Salaam. Master of Science in Nursing (Critical Care and Trauma)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Back ground. Management of deteriorating patient in the wards is of paramount importance for better patient outcomes. This needs knowledge and accurate practice for it to be effective. In addition, infrastructure and material resources are required to enable nurses to practice at their maxirnum level. Better management of critically ill patients in l the wards decreases the high demand of Intensive Care Unit beds which are mostly not enough. **Overall objective:** The overall objective of this study was to explore the nurses' knowledge and practice ir1 caring for critically ill adult patients at Amana, Mwananyamala and Temeke Regional Hospitals in Dar es Salaam. **Methodology:** The study was a cross- sectional design with sample size of 120 which included nurses who were working in general adult wards and casualty in Amana, Temeke and Mwarranyamala hospitals in Dar es Salaam. A questionnaire and a checklist were used l as data collection tools in order to obtain the information as per study objectives. The response rate was 100%. Data was cleaned and processed before analysis. lriforrnation obtained from open ended questions was sorted for similar answers; then similar answers were categorized and coded into codes for analysis. Each participant was observed once for each item in the observation checklist which had seven items with 14% each a total 98%, then the level of practice was categorized into three levels, that is good 76%-100%, satisfactory 50% -75% and poor<50% ln the checklist availability of equipment, drug and consumables were scored as 1 while absence was scored as 0, if an equipment was available but not functioning it was marked as 0. The percentage of presence and absence was reported. Ethical considerations were observed by obtaining clearance from MUHAS Research and Ethical Review Committee; a written consent was given to the participants for voluntary participation in the study. Permission to conduct study was obtained from Ilala, Temeke and Kinondoni Municipal. Computer statistical software SPSS version 16

was used for cross tabulation, frequency distribution and data analysis. A Chi-square and exact Fishers test were used to analyze categorical variables. **Results:** Results- One hundred and twenty participants participated in the study, 103g (85.8%) were women, 59 (49.2%) had diploma in Nursing, l7(l4.2%) had bachelor, 42l _ (35.0%) had certificate and 2 (1.7%) had masters. Eight three (69.2%) had work experience of less than 10 year. Knowledge levels were as follows: 8 (6.7%) good, 67 (55.8%) satisfactory, 45 (37.5%) had poor knowledge. There was a significant association between knowledge and years of working experience (p- value 0.02). The overall score on knowledge among hospitals participants were, Amana 4(l2.5%) good, 23 (71.9%) satisfactory, 5 (15.6%) poor. Temeke hospital the participant's knowledge score was l (2.9%) good, l6 (36.4%) satisfactory and 27(6l.4%) poor. While in Mwananyamala hospital the participants knowledge score was 3(6.8%) good, 28(63.6%) satisfactory, 13(29.5%) poor. The differences in participants score among hospitals were statistically significance (p-value 0.00). **Recommendations:** The hospitals should strengthen training by involving expertise in particular fields so as to update the nurse's knowledge and build competence. The Ministry of Health and Social Welfare should ensure the availability materials which are necessary for critically ill patients care such as suction tubes which were not found almost in each study area. All Municipal Hospitals should develop a high dependency unit ward rather than having critically patients scattered in different wards, where it is difficult to manage them. The Ministry of Health and Social Welfare should consider introducing an Intensive Care Unit to Amana, Temeke and Mwananyamala Hospital in order to save the patients'lives. **Conclusion:** Nurses' Knowledge and practice on management of critically ill patients in Dar es Salaam Regional Referral Hospital was satisfactory. However unavailability of intensive Care Unit and high dependency unit makes more difficulty for nursing practice as the critically ill patients were scattered in various wards. Furthermore, the hospitals had no advanced equipments for care of critically ill patients such as Continuous Positive Airway Pressure (CPAP) machine, ventilators.

155. **Kamugisha H, Kessy A. Utilization of Reproductive Health Services among Secondary School Youths in Iringa Municipality, 2012. *3rd MUHAS Scientific Conference, 2015.***

Background: Youths comprise about 18% of the total population worldwide and about 80% of them live in the low-income countries. Poor utilization of reproductive health (RH) services among youths is a problem of concern globally, regionally and locally with significant unmet needs for RH services for youths. **Aim:** The study intended to determine the use of reproductive health services by secondary school youths. **Methods:** A descriptive cross-sectional study was conducted among 347 secondary school youths aged between 15 and 24 years in Iringa Municipality. Ethical approval to conduct the study was sought from MUHAS. **Results:** Youths who participated in the survey comprised of 204 (58.8%) females and 143 (41.2%) males.Ninety-eight percent of the males and 96% of the females had heard about reproductive health services. Seventy two females (36.0%) and 59 males (41.6%) reported to have ever sought Reproductive Health(RH) services, and the highest proportion of youths who ever sought RH services belonged to the age group 19+ years (57.9%) whereas the smallest proportion was among those aged 15 – 16 years (32.9%). Increased use of the services was observed with advanced age of the respondents (X2= 8.26; p= 0.02).Among youth who had never utilized RH services, the most commonly advanced reasons for non-use included; not having any reproductive ill-health condition (82.0%), not being aware of the availability of the services (19.0%) and experiences from friends who were dissatisfied with health workers at the clinics (16.1%).**Conclusion:** Despite high levels of awareness of reproductive health services among secondary school youths in Iringa municipality, study findings depict a relatively low level of utilization of the services.

156. **Kamuhabwa AA, Kisoma S. Factors Influencing Prescribing Practices of Medical Practitioners in Public and Private Health Facilities in Dar es Salaam, Tanzania. *Tropical Journal of Pharmaceutical Research.* 2015; 14(11):2107-13.**

Purpose: To determine the factors that influence prescribing practices of medical practitioners in public and private health facilities in Dar es Salaam, Tanzania **Methods:** One hundred and ninety two (192) medical practitioners from 11 public and 3 private health facilities of Dar es Salaam, Tanzania were interviewed for the criteria they consider when making prescribing decisions. Systematic sampling was used to obtain the required number of medical practitioners working in the hospitals, while for those working in the health centers convenience sampling was used. **Results:** Medical

information from textbooks (64 %) and internet (63 %) were the main sources of prescribing information among medical practitioners. In comparison, medical practitioners in private health facilities (97 %) were more concerned with proven effectiveness of drugs than those working in public health facilities (74.2 %, p = 0.001). Cost of drug to patients was considered much more by practitioners in public health facilities (48.4 %) than their counterparts in private health facilities (24.3 %, p = 0.010). Availability of drugs in the health facility influenced prescribing decisions by a majority of prescribers from public health facilities (53.5 %) than those working in private health facilities (18.9 %, p = 0.000). **Conclusion:** There are substantial differences between prescribers working in public and private health facilities with regard to the factors which influence their prescribing decisions. In order to promote rational use of medicines, these factors should be considered by health planners when formulating policies and allocating resources in health facilities.

157. **Kamuhabwa AA, Vicky M. "Challenges facing effective implementation of co-trimoxazole prophylaxis in children born to HIV-infected mothers in the public health facilities."** ***Drug, healthcare and patient safety.*** **2015; (7): 147.**

Background: If children born to HIV-infected mothers are not identified early, approximately 30% of them will die within the first year of life due to opportunistic infections. In order to prevent morbidity and mortality due to opportunistic infections in children, the World Health Organization recommends the use of prophylaxis using co-trimoxazole. However, the challenges affecting effective implementation of this policy in Tanzania have not been documented. Aim In this study, we assessed the challenges facing the provision of co-trimoxazole prophylaxis among children born to HIV-infected mothers in the public hospitals of Dar es Salaam, Tanzania. **Methodology:** Four hundred and ninety-eight infants' PMTCT (Prevention of Mother-to-Child Transmission of HIV) register books for the past 2 years were reviewed to obtain information regarding the provision of co-trimoxazole prophylaxis. One hundred and twenty-six health care workers were interviewed to identify success stories and challenges in the provision of co-trimoxazole prophylaxis in children. In addition, 321 parents and guardians of children born to HIV-infected mothers were interviewed in the health facilities. **Results:** Approximately 80% of children were initiated with co-trimoxazole prophylaxis within 2

months after birth. Two hundred and ninety-one (58.4%) children started using co-trimoxazole within 4 weeks after birth. Majority (n=458, 91.8%) of the children were prescribed 120 mg of co-trimoxazole per day, whereas 39 (7.8%) received 240 mg per day. Only a small proportion (n=1, 0.2%) of children received 480 mg/day. Dose determination was based on the child's age rather than body weight. Parents and guardians reported that 42 (13.1%) children had missed one or more doses of co-trimoxazole during the course of prophylaxis. The majority of health care workers (89.7%) reported that co-trimoxazole is very effective for the prevention of opportunistic infections among children, but frequent shortage of co-trimoxazole in the health facilities was the main challenge. **Conclusion:** Most children who were initiated with co-trimoxazole prophylaxis did not experience significant opportunistic infections, and the drug was well tolerated. The major barrier for co-trimoxazole prophylaxis was due to frequent out-of-stocks of pediatric co-trimoxazole formulations in the health facilities. Dose determination was based on the age rather than the weight of children, thus creating potential for under- or over-dosing of children.

158. **Kamuhabwa AA, Ignace IS. "Dispensing practice of prescribed medicines in the private pharmacies in urban areas of Tanzania."** ***Indian Journal of Pharmaceutical Sciences.*** **2015; 77(5): 542.**

A descriptive cross-sectional study was conducted to assess quality of dispensing and knowledge of dispensers in 206 private retail pharmacies. The study was conducted in Dar es Salaam, Tanzania between September 2011 and April 2012. Patient simulation (mystery shopper) approach was used to assess dispensing skills of drug dispensers for prescription only medicines. In assessing dispensing skills, a 7-days course of metronidazole tablets was bought from each pharmacy. The knowledge of drug dispenser's regarding dispensing of prescription only medicines was assessed through focus group discussions and interviews. Majority (70.4%) of drug dispensers were not trained pharmaceutical personnel. The level of dispensing skills ranged from low (25.7%) to medium (70.4%). Majority of drug dispensers had low (11.4%) to medium (83.2%) levels of knowledge about dispensing of 'prescription only' medicines. From these findings, it is recommended that the national Pharmacy Council should ensure that prescription only medicines are dispensed by trained pharmaceutical personnel. On job

training and continuing professional development should also be emphasized to build capacity of drug dispensers.

159. **Kantarama E. Microalbuminuria among Type 2 Diabetes Patients at Muhimbili National Hospital, Dar es Salaam Tanzania. Master MSc (Biochemistry)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Microalbuminuria is the strong signs of diabetes nephropathy which is one of the main complications of diabetes mellitus. Microalbuminuria is defined in terms of abnormal urinary albumin excretion rate. When not controlled, microalbuminuria leads to overt diabetic nephropathy and ends in renal failure. It is the main cause of morbidity and mortality in patients with diabetes mellitus. People with type 2 diabetes are more likely to show microalbuminuria even at the time of diagnosis of diabetes because it is difficult to determine precisely the onset of type 2 diabetes. It is recommended that screening for microalbuminuria in patients with type 2 diabetes should be performed at diagnosis and yearly thereafter. However, there is a dearth of studies on microalbuminuria in patients with type 2 diabetes at Muhimbili National Hospital and in Tanzania in general. **Objective:** The aim of the present study was to determine the magnitude of microalbuminuria in patients with type 2 diabetes mellitus attending out-patients clinic at Muhimbili National Hospital. **Methodology:** The study adopted a cross-sectional study design. Data were collected among patients with type 2 diabetes attending outpatient clinic. One hundred and twenty four (124) patients were recruited on their scheduled visits to the diabetes clinic. A standardized questionnaire was used to record socio-demographic characteristics and clinical status of study participants. Random urine samples were taken and albumin was analyzed using Micro albumin 2-1 Combo Test Strips. Blood glucose was tested using Accu‑Chek Active Glucometer. **Results:** The data indicated that 60.5% of the samples were made of females and male participants were 39.5%. The mean age was 56.1(SD= 9.4) years. The mean duration of diabetes was 7.1(SD=5.3) years. The prevalence of obesity was 25.8%. The mean BMI was high among females compared to males (p=0.000). Results indicated that 80 out of 124 sampled subjects were microalbuminuric among which 28.8% had mild, 21.3% had moderate while 50% had severe microalbuminuria. The mean blood glucose was

significantly high in microalbuminuria group compared to the group without microalbuminuria (p=0.048). Pearson correlation analysis showed statistically significant linear relationship between microalbuminuria and duration of diabetes (r=0.535; p<0.0001) and age (r=0.213; p=0.018). Gender and body mass index, however, were not associated with microalbuminuria. **Conclusions and recommendations:** Duration of diabetes, high blood glucose and age were risk factors associated with microalbuminuria, whereas gender and BMI were not found to be associated with microalbuminuria. Thus, regular screen for microalbuminuria in type 2 diabetes patients is required to reduce the risk of kidney disease.

160. Kanza A, Mangi J. Perceptions towards the role of exemption scheme in utilization of health services among most vulnerable children in Tanga. *3rd MUHAS Scientific Conference,* 2015.

Background: Health service utilization among most vulnerable children (MVC) is hindered by factors such as inability to pay for health costs, poor customer care, distance to health facility and drug stock out. Previous literature suggests that elimination of costs among the poor in the population can promote service utilization. Tanga municipal council initiated an exemption scheme targeting MVC. However, statistics show that service utilization rate remains low (<40). The study explored peoples' perceptions regarding the scheme and factors affecting utilization of health services among MVCs given existence of exemption scheme. **Methods:** A qualitative study was conducted in Tanga using a purposive sampling technique. A total of 36 key informants were recruited for participation in in-depth interviews. Thematic analysis was done. **Results:** The scheme covered only one MVC disregarding the number of MVCs per household. The scheme package of services was selective to cover less costly diseases only. Client experience of poor customer care from healthcare providers hindered scheme beneficiaries from fully utilizing health services. Less sensitization about the scheme in the health facilities left majority of staff unaware of the scheme. Frequent drugs stock outs were reported to discourage MVC families seeking care in hospitals. However, majority of the participants generally felt that the scheme was a useful intervention to address health service needs of MVCs.**Conclusion:** There is a pressing need for stakeholders in the health system to practically resolve key challenges such as unreliable

drugs and medical supplies. Moreover the importance of good customer care services should be emphasized to all health workers.

161. **Kapinga JV. Household Sanitation, Hygiene Practices and Influencing Factors in Mkinga District, Tanga Tanzania. Master of Science (Applied Epidemiology)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Inadequate sanitation, hygiene and access to water increase the incidence of diarrheal diseases. Improved sanitation reduces diarrhea morbidity by 37.5%, washing hands at critical times reduces by up to 35% and improvement of drinking-water quality, such as point of use disinfection by 45%. Unimproved sanitation and hygiene practices remain to be a challenge in Tanzania which makes a country off truck to meet MDG target on improved sanitation. Due to its public importance, the country has implemented many interventions with different approaches but achievements are not encouraging in some districts. The aim of this study is to determine factors that influence household sanitation conditions and hygiene practices in Mkinga District. The findings may be used by public health officials, CHMTs and community to understand the clear status of sanitation and hygiene and contributing factors. **Methodology:** A cross sectional study was conducted in Mkinga district council whereby a probability sample of 443 heads of household was selected by stratified multistage cluster sampling. Structured interviews and observation were done through house to house survey; data collection tool were questionnaire and observation checklist. Data was analyzed using the Epic Info 3.5.1 and STATA version 12. Univariate analysis was done to generate descriptive statistics and tables, bivariate analysis was done to establish and test association of different determinants. Multivariate analyses (logistic regression with backward elimination) was done to determine the factors that are significantly associated with sanitation condition and hygiene practices as well as adjusting for confounding effect. The study was approved by Muhimbili University of Health and Allied Sciences Research and Publications committee. **Result:** A total of 443 head of households or their adult representatives were studied with a response rate of 100%. A total of 297 (67%) households owned a sanitary facility of which 168 (56.6%) had improved sanitary facilities according to WHO/UNICEF Joint Monitoring Programme (JMP) and 291 (98.0%) latrines were utilized. Among visited households, 225 (50.8%) were satisfied

with current sanitation condition, 97 (45.1%) of unsatisfied households, were willing to improve their sanitation condition in the coming six months. Among 297 households that had sanitary facilities, 31 (10.4%) practice hand washing after toilet visit. Out of 443 visited households 189(42.7%) reported treating water for drinking of which 45 (23.8%) practice safe storage of treated water. Among 290 households with children of age less than five years, 179 (61.7%) practice safe disposal of their children's faeces.Improved sanitary facilities coverage in the district was associated with high socio economic status AOR 8.31, 95% CI (3.63 – 19.02), topographical features AOR 2.78, 95% CI (1.25 – 6.15) and implementation of NSC AOR 2.34 95% CI(1.25 – 4.38). No significant factors were associated with hand washing practices after potential faecal contact. **Conclusion:** Coverage of sanitary facilities and improved sanitary facilities in the study area was high compared to the district estimates and most of these were being utilized. Coverage of hygiene practices was low especially hand washing with soap after potential faecal contact as well as the safe storage of treated water. National Sanitation and Hygiene Campaign should be well implemented to achieve the desired results of increasing sanitary facilities coverage especially improved ones and hygiene practices at household level. Hand washing with soap practices at five critical times should be highly promoted in the households. More emphasis should be put to all households to have hand washing with soap within ten paces of the sanitary facility.

162. **Kapinga WI. Patterns of sinonasal disease among patients undergoing paranasal sinuses computed tomography scan at Muhimbili National Hospital, In Dar Es Salaam, Tanzania. Master (Radiology)** ***Dissertation 2015.B Muhimbili University of Health and Allied Sciences.***

Background: The presence of a close relationship of nasal passages and sinus cavities has a clinical relevance. Diseases and conditions affecting these parts collectively termed as sinonasal disease are the most common clinical head and neck problems. Evaluation of sinonasal complex anatomy is image dependant. Computed tomography (CT) scan is the modality of choice for Para nasal sinuses (PNS) imaging. Little information is available on patterns of sinonasal disease in our setting. **Objective:** This study aimed at determining the patterns of sinonasal disease, among patients with sinonasal symptoms, undergoing PNS CT scan at Muhimbili National Hospital from June to November 2014.

Methodology: This was a hospital based cross sectional study done at Muhimbili National Hospital (MNH). It involved patients with sinonasal symptoms undergoing PNS CT scan for six months. During data collection, we used convenience-sampling technique, semi structure questionnaires and CT scan finding recording forms. Data analysis was done using SPSS version 20.0 software. **Results:** A total of 85 patients were interviewed and their CT scan findings recorded. Male to female ratio was 1.1:1 and a good number of respondents were under the age of 30 years (40.0%). The commonest described sinonasal symptom was nasal blockage (78.8%) and a prominent demonstrated CT imaging pattern was mucosal thickening (82.7%) which was frequently located in maxillary sinuses (59.3%). There was no significant relationship (p-value 0.679) when compared between nasal blockage and mucosal thickening. The relationships were statistically significantly between epitasis and opacification (p-value 0.005), fever and air-fluid levels (p-value 0.000). **Conclusion:** Sinonasal disease is common among individuals below 30 years though it cuts across all age groups with no sexpredominance. The commonest symptom was nasal blockage and mucosal thickening was the frequently observed CT imaging finding. Symptoms and CT imaging findings have relationship, of which some are significant statistically. **Recommendation:** The advent of this hospital-based paper creates a landmark for CT imaging findings pertaining to sinonasal disease in our setting. Thus, we recommend a larger sample size community based study.

163. **Katana D, Kessy A. Predictors of exclusive breastfeeding among women with children aged 6 to 12 months and the roles of elderly women in promoting the practice in Mkuranga District.** ***3rd MUHAS Scientific Conference,*** **2015. Background:** Exclusive breastfeeding (EBF) for the first six months of infants' life is a cost effective intervention in saving children's lives especially in developing countries. Despite all the advantages of EBF, in Tanzania many women still do not practice it as recommended and their breastfeeding decisions may be influenced by a variety of social, environmental, physical and personal factors. **Objective:** To explore predictors of EBF among women with children aged 6 to 12 months and the roles of elderly women in promoting the practice in Mkuranga District, Coast Region. **Methodology:** A across sectional study involving 300 mothers with children aged 6 to 12 months and 10 elderly women residing in selected villages of Mkuranga District. The mothers were selected

through multistage cluster sampling while the elderly women were conveniently identified within the households where the postnatal mothers were living. Information from the mothers and the elderly women was collected using a structured interview schedule and a key informant guide respectively. Quantitative data was entered and analyzed using Epi Info version 3.5.4 computer software. Bivariate analysis and multiple logistic regressions were performed to identify statistically significant predictors of EBF. The in depth interview information was analyzed using content analysis approach. **Results:** The highest proportion of the mothers (81.3%) initiated breastfeeding within one hour after birth. Knowledge on EBF for the first six months of life was relatively high (86%), even though only 7% of the mothers reported to have practiced EBF as recommended. Logistic regression revealed that mothers with knowledge on the duration of EBF (OR 5.56, p-value = 0.02) as well as applying the principle of emptying one breast first before shifting to the other (OR 18.34, p-value < 0.00) were significantly more likely to practice EBF. Despite the elderly women playing a major role of caring for both newborns and mothers after delivery, the study findings further revealed that they had insufficient knowledge on EBF and often had a negative attitude towards this practice. **Conclusion:** Mothers appeared to depend a lot on the support from elderly women during pregnancy up to 2 years post-delivery. Therefore, elderly women are key players in transmitting EBF knowledge even though they had insufficient knowledge on EBF. Strategies targeting on improving breastfeeding knowledge and skills among mothers as well as elderly women may help to improve EBF in Mkuranga District.

164. **Katansi NA. Urethral catheterization: practices, health providers' knowledge and adherence to guidelines at Muhimbili National Hospital . Master MMed (General Surgery)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: In medical practice about 25% of hospitalized adults have an indwelling Foley catheter and up to 90% of patients in an ICU have a urinary catheter during hospitalization. About 80% of hospital-acquired urinary tract infections are related to urethral catheters and about 10% to 30% of male urethral catheterizations result in urethral injury. **Objective:** To explore urethral catheterization practices, health providers' knowledge and adherence to guideline at Muhimbili National Hospital. **Methods:** A hospital based explorative and descriptive cross section design using quantitative

methods conducted at Muhimbili National Hospital in Dar Es Salaam, Tanzania from August to October 2014. **Results:** A total of 150 participants from six departments namely; EMD, OT, surgery, internal medicine, obstetrics and gynecology and pediatrics were observed while performing urethral catheterization. Of all the participants 26% were doctors, 72% were nurses and 2% were medical attendants. Also a total of 153 other respondents comprising of nurses (73.9%) and doctors (26.1%) from the same six departments were interviewed on urethral catheterization knowledge. Most of the respondents were young health staff aged from 20 to 39 years (73.2%). Certificate holders were 19.6%, diploma holders 45.8% and graduates 34.6%. Urethral catheterization guidelines were not available in any of the departments at MNH. Out of 150 catheterization procedures the results show that, most of the supplies were available in more than 134(89.3%) procedures, tools that were less available include disposable plastic aprons / protective clothing (28.7%), sterile catheterization pack (26%) and water soluble lubricants with anesthetics (1.3%). The study shows a generally reduced adherence to guidelines supported by partial or no preparations prior to urethral catheterization (75% of the procedures syringe were filled with ballooning fluid, 30.7% equipments were placed on trolley and 32.7% urine bags were connected to catheters). Also there was low availability of catheterization tools (plastic apron or protective clothing 28.7%, catheterization packs 26%, lubricants gel with anesthetics1.3%) and only 7.3% of the participants changed gloves after cleansing procedure. Among the participants 61.3% applied lubricating gel properly and 51.3% documented the procedure in files. Operating theater had better practices compared to other departments on the use of aprons / protective clothing (47.4%) while obstetrics and gynecology had the best practices on documentation of the procedure (74.3%). Nurses document urethral catheterization procedure more frequently (54.6%) than doctors (38.5%). Urethral catheterization is a common procedure with 99.3% of health staffs reporting to have done urethral catheterization in the past. Most of the health staff (67%) showed low knowledge on urethral catheterization. The study showed a trend of decrease in knowledge with increase in years of working experience where by the proportion of participants who scored 15 points or more were 58.3%, 30.2% and 21.9% for experience groups less than 1 year, 1 to 5 years and more than 5 years respectively. Doctors had

better knowledge (67% scoring 15 points or more) than nurses (23% scoring 15 points or more) while graduates (54.7% scoring 15 points or more) showed better knowledge than non graduates (22% scoring 15 points or more). **Conclusion:** There is generally a reduced adherence to urethral catheterization guidelines and most health staff has low knowledge on urethral catheterization. **Recommendations:** Each health facility should have a written guideline on urethral catheterization and strengthen monitoring and supervisions. We need to improve practical teaching approach at medical and nursing schools as well as on job and refresher training at work places.

165. **Kawia H, Mbawalla H, Kahabuka F. Dental practitioners' use of behavior management techniques during treatment of paediatric dental patients in Dar es Salaam. *3rd MUHAS Scientific Conference,* 2015.**

Background: Behavior management techniques are a set of procedures that are employed by dental practitioners in attending a child dental patient so as to enable the child to ease fear, anxiety, cope with and be willing to undertake dental treatment procedures. **Aim:** To determine dental practitioners' use of behavior management techniques and factors that influences their choice of the technique when treating child dental patients. **Methods:** Cross sectional study among oral health care providers: Dental Therapists, Assistant Dental Officers and Dentists were carried out in Dar es Salaam. Structured questionnaire inquired on: socio-demographics, profile of the facility, awareness, application and factors that influenced the choice and use of behavior management techniques (BMT). Data was analyzed using SPSS version 18, where frequency distribution and cross tabulations with chi-square statistics were conducted. The level of statistical significance was set at $p<0.05$. **Results:** Seventy four dental practitioners participated in this study, 49 (66.2%) males and 75.7% aged 40 years or below. The common used BMT were: Tell Show Do (100%), positive reinforcement (91.9%) and voice control (89.2%)). Few practitioners reported to have used sedation (6.8%) and hand over mouth (5.4%). More than 90% of practitioners reported child's emotional state and past dental experience to influence their choice of technique.About 72% reported to be using at least six of the seven universal behavior management techniques. However, no statistical significant difference noted in use of these techniques by level of professional training and health facility, practitioner's working experience and

whether a private or public dental clinic. **Conclusion:** Majority of dental practitioners in Dar es Salaam use BMT during treatment of paediatric dental patients. Child's past dental experience influenced their choice of the technique used and that professional training, experience or levels of facility was no significant associated with use of the techniques.

166. **Kawia H, Kahabuka FK, Mbawalla HS. Parental deceptive information: A case of traditional uvulectomy. *Tanzania Dental Journal*. 2015. *18*(2): 76-80.**

Traditional uvulectomy (TU) is a partial or radical removal of the uvula by traditional practitioners. Therapeutic uvulectomy is performed as a remedy for various ailments usually; persistent cough, sore throat, dry throat, vomiting, diarrhea, anorexia, rejection of breast by a child and growth retardation. In Tanzania, TU is done secretly as it is an illegal practice thus often parents do not reveal information of the procedure when complications occur and drive them to seek dental or other medical consultations. A case of deceptive information after traditional uvulectomy is presented.

167. **Kawia H, Kahabuka FK, Mbawalla H. Parental deceptive information: A case of traditional uvulectomy. *Tanzania Dental Journal*. 2015; *18*(2): 76-80.**

Traditional uvulectomy (TU) is a partial or radical removal of the uvula by traditional practitioners. Therapeutic uvulectomy is performed as a remedy for various ailments usually; persistent cough, sore throat, dry throat, vomiting, diarrhea, anorexia, rejection of breast by a child and growth retardation. In Tanzania, TU is done secretly as it is an illegal practice thus often parents do not reveal information of the procedure when complications occur and drive them to seek dental or other medical consultations. A case of deceptive information after traditional uvulectomy is presented.

168. **Kawia H, Mbawalla H, Kahabuka FK. Application of Behavior Management Techniques for Paediatric Dental Patients by Tanzanian Dental Practitioners. *The open dentistry journal*. 2015; 9:455.**

Background: Management of children's behavior is an integral component of pediatric dental practice. **Objective:** To investigate the oral health care providers' awareness, use and factors for choice of behavior management techniques when attending pediatric dental patients. **Methods:** A cross-sectional study among dental practitioners in Dar es

Salaam, Tanzania. Data collection was done through interview using a structured questionnaire. The recorded information included: awareness and application of behavior management techniques (BMT) when attending a child dental patient, factors influencing choice of a particular technique, socio-demographics, level of professional training, working experience and facility profile. Using SPSS program version 18, frequency distributions and cross tabulations analyses were performed. **Results:** 74 dental practitioners participated in the study, of whom 49 (66.2%) were males and 44 (59.5%) were graduates. Most participants were aware of the behavior management techniques, ranging from 100% for Tell-Show-Do to 86% for distraction. A small proportion (9.5%) reported to have adequate skills, all of them were graduates. The use of universally accepted BMTs was reported by 65% of experienced practitioners, 61% of graduates, 59% of those reporting to have received formal training and all of those reporting to have fair/inadequate skills to apply BMTs (p= 0.01). **Conclusion:** Most participants were aware of BMTs, although few acknowledged having adequate skills to apply the techniques. They use BMTs during treatment of pediatric dental patients and their choice of the technique is mainly influenced by children's factors.

169. Keogh SC, Kimaro G, Muganyizi P, Philbin J, Kahwa A, Ngadaya E, Bankole A. Incidence of Induced Abortion and Post-Abortion Care in Tanzania. *PloS one*. 2015; 10(9):e0133933.

Background: Tanzania has one of the highest maternal mortality ratios in the world, and unsafe abortion is one of its leading causes. Yet little is known about its incidence. **Objectives**: To provide the first ever estimates of the incidence of unsafe abortion in Tanzania, at the national level and for each of the 8 geopolitical zones (7 in Mainland plus Zanzibar). **Methods**: A nationally representative survey of health facilities was conducted to determine the number of induced abortion complications treated in facilities. A survey of experts on abortion was conducted to estimate the likelihood of women experiencing complications and obtaining treatment. These surveys were complemented with population and fertility data to obtain abortion numbers, rates and ratios, using the Abortion Incidence Complications Methodology. **Results:** In Tanzania, women obtained just over 405,000 induced abortions in 2013, for a national rate of 36 abortions per 1,000 women age 15–49 and a ratio of 21 abortions per 100 live births. For

each woman treated in a facility for induced abortion complications, 6 times as many women had an abortion but did not receive care. Abortion rates vary widely by zone, from 10.7 in Zanzibar to 50.7 in the Lake zone. **Conclusions**: The abortion rate is similar to that of other countries in the region. Variations by zone are explained mainly by differences in fertility and contraceptive prevalence. Measures to reduce the incidence of unsafe abortion and associated maternal mortality include expanding access to post-abortion care and contraceptive services to prevent unintended pregnancies.

170. **Khalid S. Sexual Dysfunction and Treatment Compliance among Patients Taking Antipsychotic Medications at Psychiatry Unit in Muhimbili National Hospital, Dar Es Salaam, Tanzania. Master of Science(Nursing Mental Health)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Sexual side-effects of antipsychotic medications may be an important cause of non- compliance to medications. Therefore understanding the prevalence of sexual dysfunction and effect on compliance to antipsychotics treatment is important because knowing the magnitude of the antipsychotics induced sexual dysfunction and its effects may contribute to the planning for improving proper management of SD in patients. **Objective:** To determine prevalence of Sexual Dysfunction and its effect on treatment compliance among patients taking antipsychotic medications at Psychiatric Out-patient clinic in Muhimbili National Hospital. **Methods:** This was a cross sectional study that took a snapshot of situation during a period of data collection. A total of 426 participants taking antipsychotic medications attending the psychiatric clinic were recruited. Standard structured questionnaire was used for interview where by the psychotropic related sexual dysfunction Questionnaire (PRSexDQ) was used - after being translated into Kiswahili language. Data were collected by the researcher and two research assistants and analyzed using computer software with SPSS version 20. For continuous variables (e.g. age) the mean, range, and standard deviation was used; categorical variables (e.g., gender) was described by absolute and relative frequencies. Sexual dysfunction was defined as having a score equal to or greater than 1 in any of the four items of the PRSexDQ that evaluated the various dimensions of the sexual function. The potential relationship between some demographic and clinical variables (i.e., age, sex, medications and treatment duration) and the presence of sexual dysfunction was

investigated using a logistic regression analysis and all comparisons were considered significant if $P < 0.05$. **Results:** Overall (63.8%) of the participants exhibited sexual dysfunction according to the assessment with PRSexDQ. Sexual dysfunction was common in both sexes with females exhibiting high prevalence of SD, 78.3% than males 57.6% ($X2=16.92$, $P<0.001$). Sexual dysfunction seems to increase as duration of treatment gets longer. Males participants found with higher rates of poor tolerance to the antipsychotic medications 69.7% compared to females 30.3%. Also 72.3% and 27.7% of males and females respectively stopped taking antipsychotic medications for sometimes due to fear of the side effects of medications on sexual dysfunction. **Conclusion and Recommendations:** This study showed that the prevalence of Sexual dysfunction was high in participants taking antipsychotics especially in long term treatment. All types of antipsychotics are associated with development of SD. The findings of this study may expand previous data especially on the prevalence and impact on compliance to antipsychotic medication in Tanzania. Therefore, there is a need to consider sexual dysfunction during management of patients taking antipsychotic medication.

171. **Khamis UA. Effect of rotavirus vaccination on childhood diarrheal disease in zanzibar using existing surveillance system. Master of Applied Epidemiology,** ***Dissertation. 2015. Muhimbili University of Health and Allied Sciences.***

Background: Diarrheal diseases are a major cause of hospitalizations and child deaths globally and are a cause of one in six deaths among children aged less than five years. Rotavirus is the leading cause of severe diarrhea in children in developed and developing countries and causes 527,000 deaths each year, with most rotavirus-associated deaths occurring in sub-Saharan Africa and southern Asia. Moreover, rotavirus is responsible for 25%–50% of all hospitalizations for diarrhea among children <5 years of age. Two rotavirus vaccines have been shown to be effective against rotavirus and have been licensed in more than 100 countries, including Tanzania since 2013. Introduction of these vaccines is expected to reduce child mortality by decreasing the incidence of severe diarrhea and the frequency of death from diarrhoeal disease. **Objective:** The aim of this study to assess the quality of data and to determine the effect of Rotavirus Vaccine on the burden of diarrhoea diseases using Mnazi Mmoja Hospital surveillance data in Zanzibar . **Methods:** a retrospective review of the sentinel surveillance data comparing the

proportion admission due to diarrhoea and the proportion of rotavirus positive in pre vaccine era (2010-2012) and post vaccine era (2013-2014) at Mnazi Mmoja hospital was conducted. Data quality was assessed using RDQA checklist for data quality assessing data management and data verification. Univariate and multiple logistic regression models were run. Odds ratio and their 95% confidence interval are presented. P value was two-tailed and set at $\alpha = 5\%$. **Results:** A total of 353 children aged 18 months or less were included in the analysis. Majority were male (58%) and most were aged between 0-12 months (57%). About 64% of the children received full dose of rotavirus vaccine and about78% of children received at least one dose of vaccine. The proportion of children aged 18 months or less admitted due to diarrhoea among all admissions was 85% in 2010 which was observed to decrease with time and was found to be 54% in 2014. Rotavirus detection ratio was reduced in post vaccine period compared to period before vaccine as reference (0.64, P= 0.028 in 2013 and 0.54, P= 0.01 in 2014). Multivariate logistic regression identified that receiving complete dose of rotavirus vaccine is associated with protection against rotavirus (aOR = 0.44, 95% C.I, 0.2160- 0.9103). Data quality of the surveillance system was generally good. Data was found 100% completed in most of the variables and was timely reported; also data management system was well organized with key staffs that are trained in data management. **Conclusion:** The results revealed that the surveillance data was of good quality and diarrhea declined after introduction of vaccine. Also the proportion of cases positive for retrovirus declined after the introduction of vaccine. Being fully vaccinated against rotavirus was significantly associated with stool being negative for rotavirus among children eligible for rotavirus vaccination. The surveillance should continue with more efforts to promote rotavirus vaccine uptake while sustaining the data quality. However, continued surveillance and further population-based studies are needed to monitor the direct and indirect effects of vaccination on reduction of rotavirus-related disease, particularly in the long-term.

172. **Khan VA, Mohd S, Bernardo LG. "On paranorm I-convergent sequence spaces defined by a compact operator."** ***AfrikaMatematika. 2015. 26(7-8): 1387-1398.***

In this article we introduce and study paranorm$I$ -convergent sequence spaces SI (p), SI0 (p) and S$I\infty$ (p) with the help of compact operator T on the real space R and a bounded sequence p= (pk) of positive real numbers. We study some topological and algebraic

properties, prove the decomposition theorem and study some inclusion relations on these spaces.

173. **Khan VA, Mohd S. "On I-Convergent Sequence Spaces of Bounded Linear Operators Defined By a Sequence of Moduli."** ***Appl. Math. 2015. 9(3): 1475-1483*****.**

In this article we introduce and study sequence spaces C*I* (T, F), C*I* 0 (T, F) and B*I*¥ (T, F) on the sequence of bounded Linear operators with the help of a sequence F = (*fk*) of modulus functions. We study some topological and algebraic properties, provethe decomposition theorem and study some inclusion relations on these spaces.

174. Khan VA, Shafiq M, Rababahi RA. On I-convergent sequence spaces defined by a compact operator and a modulus function."*Cogent Mathematics*. 2015: 2(1): 1036509.

In this article we introduce and study \(I\)-convergent sequence spaces \(\mathcal{S}^{I}(M)\), \(\mathcal{S} ^{I}_{0}(M)\) and \(\mathcal{S}^{I}_{\nifty}(M)\) with the help of compact operator \(T\) on the real space \(\mathbb{R}\) and an Orlicz function \(M\). We study some topological and algebraic properties and prove some inclusion relations on these spaces.

175. **Kiariro NL. Prevalence and intensity of schist soma haematobium among school children and factors associated with continuity of transmission in umba division, lushoto district, Tanzania. Master of MSc (Parasitology and Medical Entomology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Preventive chemotherapy by mass drug administration (MDA) of Praziquantel is a key intervention for schistosomiasis control. This method together with public education plays an important role for attaining the current global strategy of moving from morbidity to transmission control that requires monitoring for continuity of transmission. Although 5 rounds of Praziquantel MDA have been administered in Umba division, health facility data still show record of cases of S.haematobium infection by the presence of blood in urine indicating that urinary schistosomiasis is still a problem. **Objective:** This study aimed to assess the prevalence of S.haematobium among school children and the factors associated with continuity of transmission in Umba division.

Methods: A quantitative cross-sectional study was carried among school children in June, 2015. Urine samples were collected from each pupil for establishing prevalence and intensity of S. haematobium. A structured questionnaire was used to collect information on coverage of MDA, knowledge, attitudes and practices regarding urinary schistosomiasis transmission, symptoms and control; and the sources of water for domestic use. Data were analysed by using SPSS version 20. **Results:** Overall prevalence of S. haematobium was 5.5% based on microscopic examination of urine samples. Intensity of S. haematobium was 70 eggs in 18 infected children. Among the infected children, 88.8%had light intensity whereas11.2%had moderate intensity.MDA uptake increased from 62.6% in 2013 to 80.1% in 2014 and 61.7% of school children participated in MDA in both years. There was positive impact of MDA campaigns on level of knowledge on S. haematobium p= 0.000. Majority of children showed positive attitude towards S. haematobium transmission sign and control. Risk factors like gender rice cultivation, fishing, fetching water and washing did not show any significant association with S. haematobium infection **Conclusion:** Prevalence and intensity of S. haematobium among school children in Umba division was found to be low following MDA campaigns which have been done annually for four years now. Level of knowledge on S. haematobium infection among school children show impact on this low prevalence and intensity.

176. **Kidanto H, Msemo G, Mmbando D, Rusibamayila N, Ersdal H, Perlman J. Predisposing factors associated with stillbirth in Tanzania.** ***International Journal of Gynecology & Obstetrics*****. 2015; 130(1):70-3.**

Objective: To determine whether specific medical conditions and/or fetal compromise during labor are associated with fresh stillbirth (FSB), and whether absent fetal heart rate (FHR) before delivery can increase risk of FSB. **Methods:** An observational cohort study was conducted at three university referral hospitals in Tanzania between January and September 2013. Maternal, labor, and neonatal characteristics were recorded for all deliveries. FSB was defined as an Apgar score of 0 at 1 and 5 minutes, with intact skin and suspected death during labor or delivery. **Results:** Among 15 305 deliveries, there were 499 stillbirths (243 FSBs and 256 macerated stillbirths). Stillbirth was significantly more likely than a live birth after maternal transfer (odds ratio [OR] 3.27; 95%

confidence interval [CI] 2.73–3.92; P < 0.001) and when FHR was absent (OR 996.29; 95% CI 632.19–1570.09; P < 0.001). Risk of stillbirth increased with uterine rupture (OR 138.62; 95% CI 60.73–316.44), placental abruption (OR 40.96; 95% CI 28.97–57.91), cord prolapsed (OR 13.49; 95% CI 6.97–26.11), and prematurity (OR 6.87; 95% CI 4.71–10.03; P < 0.001 for all). **Conclusionn:** In low-resource settings, FSB may be prevented by using a combined strategy of clinical risk identification, early detection of abnormal FHR, and expedited delivery.

177. **Kidula M, Kajula L, Yahya-Malima K. The psychosocial impacts on families when caring relative(s) with mental illness. *3rd MUHAS Scientific Conference*, 2015.**

Background: Tanzania, like many of low income countries is disproportionately affected by mental and neurological conditions, while the World Health estimates an increase of mental illness in the future. Despite this forecast and the integration of mental health policy in the national health policy, to date, less than 1% of the health budget addresses mental illness. Thus, the burden of caring for patients with mental illnesses falls to the family and significant others, ultimately leading to psychosocial impacts with impaired community integration of both patients and cares. The changing socio-economic context enforces a declined functional social support system and may aggravate the psychosocial impact on families. **Aim:** To determine the psychosocial impacts and coping strategies of mental illness on the family members caring a person with psychiatric disorders in Temeke Municipality, Dar es Salaam.**Method:** We deployed a descriptive purposive sampling qualitative study to enroll 14 participants to a focused group discussion and in-depth interviews. Ethical clearance was granted from MUHAS Ethical Committee. **Results:** Seven main themes emerged from content analysis of this study: Financial constraints, disruption of family functioning, mismanagement of patient's symptom, lack of social support, conflicts, stigma and discrimination and inability to cope and adapt. The themes reveal psychosocial impacts incurred by families when caring relatives with mental illness.**Conclusion:** Family caring for persons with mental illness may be the alternative for low income countries with overburdened health care systems like Tanzania, but conversely, it imposes multiple psychosocial challenges for the patient, family carers, community at large and mental health professionals. These impacts may have socio-economic consequences for the nation if ignored. The findings underscore the

importance of investing in mental health promotion and preventive interventions and increase capacity to address psychosocial care during treatment for the patient and cares.

178. **Kija E, (et al.) "P115–2579: Clinical presentation of Tuberous Sclerosis Complex in Cape Town, South Africa."** ***European Journal of Pediatrics Neurology*****. 2015; 19: 126-127.**

Objective: To document the phenotype of children with Tuberous Sclerosis Complex (TSC) from sub-Saharan Africa, describing presenting features to improve early diagnosis in our setting. **Methods:** Patients were recruited, 10/13 to 08/14, from the only dedicated TSC clinic in sub-Saharan Africa TSC clinic at Red Cross War Memorial Children's Hospital in Cape Town, South Africa, a University tertiary facility. **Results:** Thirty-one patients complied with international diagnostic criteria (18 males: 13 females, median age 11 years (range 1–24). Median age at diagnosis was 28 months (range 1–145). Ancestry was 14 indigenous African, 8 European, 8 Mixed Ancestry and 1 Arabic. Twenty-four (77%) children were referred with focal seizures, TSC was then diagnosed. Eight (26%) children had epileptic spasms, 2 at presentation and in 6 with focal seizures the spasms occurred later. Skin manifestations and hypertension led to referral in 5 (16%) and 3 (10%) children respectively. Most children were referred to neurology as emergencies with acute convulsive seizures, a smaller proportion were referred from medical out-patients with short seizures, skin lesions and hypertension. Seven (23%) had Subepyndymal Giant Cell Astrocytoma (SEGA) detected and 18 (58%) renal angiomyolipoma. 29 (93.5%) children had cortical tubers and subepyndymal nodules. Nineteen children (61.3%) had mild intellectual disability. **Conclusions:** TSC prevalence is estimated 1:6000 newborns and based on our regional population of 4 million children, over 660 children may have TSC. The majority of affected children in our region and potentially sub-Saharan Africa are probably not diagnosed. Our study identified seizures as the main presenting feature leading to diagnosis of TSC. This differs from overseas where children are more likely to present with skin lesions. This highlights the need to raise awareness of such common clinical markers to promote early referral to specialist centers to reduce complications.

179. **Kilasi SM. Factors Influencing Utilization of Cervical Cancer Screening among HIV Positive Women in Mbeya. Master of Science Applied Epidemiology *Dissertation 2015. Muhimbili University of Health and Allied Sciences*.**

Background: Annually about half a million women develop cervical cancer, with more than 80% occurring in developing countries. HIV positive women have an increased risk of invasive cervical cancer. Screening is effective in reducing incidence in cervical cancer. Integration of HIV care and cervical cancer screening services strengthens existing screening HIV services. Limited information exists on the extent of utilization of cervical screening services and its associated factors among HIV positive women in Tanzania. **Methods:** The study was cross sectional hospital-based among HIV positive women aged 18 years and above at Mbeya consultant Hospital in October-December 2014. Respondents were systematically sampled from the list of attendance during their monthly drug refill attendance. Data were collected using an interview schedule. The main outcome variable was utilization of cervical cancer screening services. Logistic regression analysis was performed to examine factors associated with utilization of cervical cancer screening services. Results: A total of 345 respondents aged between 19 to 60 years were interviewed. The resp0ndents' mean age was 37 years (standard deviation=8.5) with the majority (60.6%) being in the age range of 35 to 60 years. Majority of the women (74.8%) had primary education. Fifty six per cent of the respondents had been diagnosed with HIV in the last one to five years and 87.1% had their first sexual intercourse at the age of 17-29 years. Most of the respondents (96.5%) reported to have ever heard of cervical cancer screening. However 42.6% of the respondents had been screened for cervical cancer. Attitude and number of children are Factors independently associated with utilization of cervical cancer services included having one or two children (AOR=l0.l4; 95% CI= (2.86.-35.96). The commonest reason for not screening included not knowing where to screen and cost for screening. **Conclusion:** Awareness of cervical cancer screening among the respondents was high but utilization of cervical cancer screening among the HIV positive women is moderate. In this high risk population, cervical cancer screening could be improved by an organized cervical screening program for HIV positive women.

180. **Kileo NM, Michael D, Neke NM, Moshiro C. Utilization of cervical cancer screening services and its associated factors among primary school teachers in Ilala Municipality, Dar es Salaam, Tanzania. *BMC health services research*. 2015; 15(1):1.**

Background: Worldwide cervical cancer is one of the more common forms of carcinoma among women, causing high morbidity and high mortality. Despite being a major health problem in Tanzania, screening services for cervical cancer are very limited, and uptake of those services is low. We therefore conducted a study to investigate utilization of cancer screening services, and its associated factors among female primary school teachers in Ilala Municipality, Dar es Salaam. **Method:** We conducted a cross-sectional study between May – August 2011 which involved 110 primary schools in Ilala Municipality in Dar es Salaam. Five hundred and twelve female primary school teachers were sampled using a two-stage cluster sampling procedure. Data on utilization of cervical cancer and risk factors were collected using a self-administered questionnaire. Proportional utilization of cervical cancer screening services was identified through a self report. Risk factors for services utilization were assessed using logistic regression analyses. **Results:** Out of 512 female primary school teachers, only 108 (21 %) reported to ever been screened for cervical cancer. Utilization of cervical cancer screening services was 28 % among those aged 20–29, 22 % among married and 24 % among those with higher level of education. Women were more likely to utilize the cancer-screening service if they were multiparous (age-adjusted OR = 3.05, 95 % CI 1.15–8.06, P value 0.025), or reported more than one lifetime sexual partner (age-adjusted OR 2.17, 95 % CI 1.04–4.54, P value 0.038), or did not involve their spouse in making health decisions (adjusted OR 3.56, 95 % CI 2.05–6.18, P value <0.001). **Conclusion:** The study has demonstrated low level of utilization of cervical cancer screening service among female primary school teachers in Ilala munipality. Female primary school teachers with more than one previous pregnancy and those with more than one life-time sex partners were more likely to report utilization of the service. Spouse or partners support was an important factor in the utilization of cervical cancer screening service amongst the study population.

181. **Kilewo EG, Gasto F. "Factors that hinder community participation in developing and implementing comprehensive council health plans in Manyoni District, Tanzania."** ***Global health action.*** **2015.**

Background: Decentralization of public health planning is proposed to facilitate public participation in health issues. Health Sector Reform in Tanzania places emphasis on the participation of lower level health facilities and community in health planning process. Despite availability of policies, guidelines, and community representative organs, actual implementation of decentralization strategies is poorly achieved. This study intended to find out factors that hinder community participation in developing and implementing Comprehensive Council Health Plan (CCHP). **Materials and methods:** A qualitative approach was conducted in this study with key informants from Health Facility Governing Committees (HFGC), Council Health Service Board (CHSB), and Council Health Management Team (CHMT). Data were collected using in-depth interviews. Data generated were analyzed for themes and patterns. **Results**: Factors that hindered community participation included lack of awareness on the CCHP among HFGC members, poor communication and information sharing between CHMT and HFGC, unstipulated roles and responsibilities of HFGC, lack of management capacity among HFGC members, and lack of financial resources for implementing HFGC activities. **Conclusions:** The identified challenges call for policy makers to revisit the decentralization by devolution policy by ensuring that local governance structures have adequate resources as well as autonomy to participate in planning and managing CCHP in general and health facility plans in particular.

182. **Kilonzo SB, Ringo F, Steven H, Mpondo BT, Meda JR. Brugada-like syndrome presenting with monomorphic ventricular tachycardia and Brugada-type electrocardiogram unmasked by fever in an infant: a case report.** ***Tanzania Journal of Health Research*****. 2015; 17(3).**

Brugada syndrome is an autosomal-dominant arythmogenic genetic disorder associated with mutation in the SCN5A gene. We report a case of 3-month-old Tanzanian male who was admitted at Muhimbili National Hospital in Dar es Salaam, Tanzania with severe pneumonia, high fever and monomorphic ventricular tachycardia. The patient was treated

with intravenous Amiodarone. In addition, oxygen, parenteral antibiotics, antipyretics and intravenous fluids were also given. About 2 hours and 20 minute later the child stabilized. An ECG obtained shortly after termination of ventricular tachycardia showed the typical J-point and coved ST elevation typical of Brugada type I pattern. To the best of our knowledge, this is the first paediatric case with Brugada-type ECG to be reported in Sub-Saharan Africa. This case emphasizes the need to increase awareness among clinicians of clinical and genetic arythmogenic disorders. Multiple ECGs during and after febrile disorders should be performed in children who exhibit extreme tachycardia or signs of cardiac failure.

183. **Kimambo EA. Assessment of acrylic removable partial dentures among patients attending public dental clinics, Dar es salaam, Tanzania. Master of Dentistry (Restorative Dentistry)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Due to limited resources most people in our society use the interim acrylic removable partial dentures as permanent treatment option. This necessitates designing of a good quality acrylic Removable Partial Denture (RPD) that will have good biocompatibility as well as long functioning life span for patients. Therefore the assessment of the outcomes of acrylic RPD treatment necessitates the importance of considering the objective assessment as well as subjective satisfaction. **Objective:** The aim of this study was to assess the quality of the acrylic RPD among patients attending public dental clinics in Dar es Salaam by means of subjective and objective findings. Study design: This was a descriptive cross-sectional hospital based study. **Study setting:** The study was conducted in MUHAS dental clinic, Sinza Hospital dental clinic, Magomeni hospital dental clinic, Mnazi Mmoja hospital dental clinic, Amana Hospital dental clinic and Temeke Hospital dental clinic in Dar es Salaam. Study population: 3225 subjects aged 18 years and above attended public dental clinics in Dar es Salaam during the period between August 2014 and January 2015, Out of them 339 met all the recruitment criteria and were enrolled in the study. **Methodology:** A two stage convenient sampling method was used. The study sample comprised all patients who were attending the respective dental clinics wearing acrylic RPD over a period between August 2014 and January 2015. After consenting the Patient Denture Satisfaction

Questionnaire was issued to the subjects. The questionnaire was a modification of the one developed by Bolender et al (1969). The subject's socio-demographic particulars were gathered through a structured questionnaire followed by clinical examination for assessing the quality of acrylic RPD. All the information obtained were coded, entered in a computer and analyzed using SPSS version 20 software. Frequencies and percentages were generated to find the distribution of subjective satisfaction and objective assessment among the patients. Objective assessment of the subjects wearing acrylic RPD was performed using the portion of CDA-California Dental Association system specifically designed for evaluation of removable prosthesis. This measured esthetics, occlusion, stability, retention and base adaptation. Following evaluation of acrylic RPD it was rated as either acceptable or unacceptable. Statistical significance was set at $p<0.05$ to check for difference between variables. Bivariate associations were analyzed using Chi-square test and Pearson's correlation coefficient. Multivariate analysis was performed using logistic Regression. **Results:** The sample consisted of 339 subjects wearing acrylic RPD which is 10.5% of all attended subjects. This proportion consisted of 156 (46%) males and 183 (54%) females. Majority of the subjects wearing acrylic RPD (73.2%) were subjectively satisfied by their acrylic RPD. Several factors contributed to the observed subjective satisfaction of the subjects wearing acrylic RPD namely functional limitation, physical pain, psychological discomfort, psychological disability, physical disability, handicap and social disability. Of all the factors statistically significance difference was observed in psychological discomfort, physical pain, physical disability, social disability and handicap ($p=0.001$). The objective assessment of subjects wearing acrylic RPD was observed to be 58.7%. This was contributed by several other factors such as denture stability, adequate adaptation, retention, and adequate base, ulceration of soft tissues, esthetics, and color of the acrylic RPD, plaque accumulation and calculus. Regression analysis showed that there was statistically significantly difference in denture stability, retention, esthetics, color of the acrylic RPD, and plaque accumulation ($p=0.001$). The results also showed a correlation between overall subjective satisfaction and objective assessment of the subjects wearing acrylic RPD ($p=0.001$) **Conclusion:** Of the subjects studied more than a tenth wore acrylic RPD and the majority of wearers were subjectively satisfied. Results from this study depict the contributing domains of

subjective satisfaction of acrylic RPD wearers as psychological discomfort, physical pain, physical disability and handicap. More than half of the acrylics RPD worn by the studied subjects were graded as acceptable by the clinician. The stability of denture, retention, color of denture and good design that reduce plaque accumulation and calculus formation were the contributing domains in objective assessment. These results underscore the importance of high technical quality as a cornerstone of prosthodontics treatment and especially when subjective and objective assessments of acrylic RPD are concerned. **Recommendations:** Further studies on assessment of acrylic RPD should be done in a general population based study that could help in shedding more light on the issues that will help to improve the objective and subjective assessments with prosthodontics treatment. Since there was a high prevalence of subjects wearing acrylic RPD in young participants, information and education on preventive measures towards caries and periodontal diseases should be emphasized. A good quality design of acrylic RPD that is functionally acceptable and biocompatible should be of paramount importance in prosthodontics assessment, planning, treatment and subsequent evaluation of subjective satisfaction of the prosthodontics treatment.

184. Kimario J, Siriel M. Knowledge and preference on mode of delivery among antenatal attendees at Muhimbili National Hospital. *3rd MUHAS Scientific Conference*, 2015.

Background: Women's preference on modes of delivery varies from one area to another. Each mode of delivery has its benefit and risk to both mother and the baby and women have to be aware of them before choosing the mode of delivery. Preference on modes of delivery can give a clue on how women in Tanzania perceive modes of delivery.**Objective:** To assess the knowledge and preferencesof deliverymodes among antenatal attendees at Muhimbili National Hospital.**Methods:** A cross sectional study was conducted at Muhimbili National Hospital antenatal clinic. An interviewer administered questionnaire was used. Data analysis was done using SPSS database version 17. **Results:** A total of 654 women were interviewed. The mean age was 28.7(sd 4.9) and over 60% were multiparous. The overall level of knowledge on modes of delivery was high in 26.9% of the respondents**.** Preference for vaginal delivery was 89.8% and for caesarean delivery was 10.2%. Two thirds of the respondents who had

indications for caesarean delivery had preference on vaginal delivery.High level of knowledge on modes of delivery was associated with having secondary school education or more (OR 2.49, CI 1.52-4.08) .Preference on vaginal delivery was associated with parity (OR 3.42 CI 1.67-7.04), and history of previous vaginal delivery (OR 3.82 CI 1.94-7.49) **Conclusion:** Level of knowledge on benefits and risks of modes of delivery was low among majority of the respondents due to lack of enough discussion on modes of delivery during antenatal visits. Health care providers need to spend more time on counseling with pregnant women on their indicated mode of delivery during antenatal visits.

185. **Kinyunyi P. The effectiveness of monovalent rotavirus vaccine in protecting children under two years against rotavirus diarrhoea in Mwanza Region, Northern Tanzania. Master of Applied Epidemiology,** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****. Introduction**:Rotavirus is one of the leading cause of hospitalization and outpatients visits in children under five years of age. Rotaviruses contribute 41% of the total diarrhea cases, 25 million outpatient attendance and 2 million hospitalizations in children aged below 5 years globally. In Tanzania several studies indicates that rotavirus is to be responsible of 30% – 50% of all hospitalised children with diarrhoea.This study aimed at assessing the effectiveness of a monovalent rotavirus vaccine in protecting children under two years against rotavirus diarrhea in in Mwanza region, Tanzania from October 2014 to January 2015. **Methodology:** Unmatched case-control study was conducted at Bugando hospital and Sekouteure hospital in Mwanza. An interview schedule was used to collect demographic, vaccination , laboratory result, and parents/guardians informations. Main outcome measure was effectiveness of rotavirus vaccination against rotavirus diarrhoea .Children below two years admitted in hospital with chief complain of diarrhea and met inclusion criteria were recruited in the study.Epi Info together with another standard software (e.g SPSS) was used for data analysis. A chi square test was used to compare some categorical background. Differences were considered to be statistically significant if a two tailed P <0.05. **Results:** A total of 132 children between the age of 1 month to 23 months with mean age of 12 months (standard deviation = 5.4) were enrolled in the study. Of which 44 were cases and 88 were controls. Among cases and controls respectively, 38.6% and 21.6% were unvaccinated, 68.2% and

84.1% received 1st dose and 61.4% and 80.7% received 2nd dose of rotavirus vaccine. There was 65% (95% CI, 13% to 86%) significance reduction in rotavirus infection among children vaccinated compared to an unvaccinated children with rotavirus vaccine (P value = 0.02, Odds ratio = 0.35). The rotavirus vaccine provided significance protection of 74% (95% CI, 23% to 91%) for dose 1 and 73% (95% CI , 29% to 90%) for dose 2.Among children aged less than one year, the percentage of children protected against rotavirus diarrhea was 79% (95% CI, -8% to 96%) for children aged more than one year reduction was 67% (95% CI, -24% to 91%). There was no significant different in the age at vaccination between cases and controls. **Conclusion:** Monovalent rotavirus vaccine provided protection against rotavirus diarrhea among children less than two years in Mwanza region.

186. **Kirua RB. Comparison of Pharmacy Prices versus NHIF Reference Prices for Antipyretic, Antihypertensive and Ant diabetic Medicines across Four Regions in Tanzania Master of Science (Pharmaceutical Management)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Availability of essential medicines in the public health facilities is a major problem in developing countries, including Tanzania. As a result, private sector pharmacies and drug shops play an important role as sources of essential medicines for patients. Beneficiaries of the National Health Insurance Fund (NHIF) also utilize these premises as their sources of medicines. However, it is not known how pharmacy prices differ from NHIF reference prices across different regions. **Objective:** This study aims to compare pharmacy prices and NHIF reference prices for antipyretic, antihypertensive and antidiabetic medicines across four regions in Tanzania. **Methodology:** This was a cross-sectional study and employed both qualitative and quantitative methods of data collection. It was conducted in four regions of Tanzania, namely; Dar es Salaam, Dodoma, Morogoro and Kilimanjaro. A total of thirty three (33) pharmacies were surveyed. Qualitative data were collected using an interview guide while quantitative data were collected by using structured questionnaire, which was designed to capture the prices of 53 tracer medicines. Interviews were conducted with two NHIF officers who are responsible to set reference prices and other 33 personnel from the pharmacies performing similar roles. Quantitative data were analyzed by using Statistical Package for

Social Sciences (SPSS) software version 20. **Results:** The study findings showed that 29 tracer medicines were available in more than 10 pharmacies and hence qualified for price comparisons. NHIF reference prices for 13 of them (4 antipyretics, 6 antihypertensive and 3 ant diabetics), which represents 45%, was lower than mean price at the pharmacies. A Price difference varies across regions; in some NHIF prices were higher than pharmacy prices and vice versa for the similar medicines. Majority of pharmacies (72.7%) set their retail prices by adding a profit margin ranging from 20% to 50% of the purchase prices. As for NHIF, the market retail price and inflation rates are used to determine the reference price for reimbursements. There was some consensus among the dispensers that when NHIF reference prices are lower than the pharmacy prices, then patients are requested to pay for the price difference, otherwise they will not get the prescribed medicines. **Conclusion:** Pharmacy prices were higher than NHIF reference prices for about half of the antipyretic, antihypertensive and ant diabetic of the essential medicines which were readily available in the accredited premises in the study regions. Therefore, patients have high chances of incurring out-of-pocket expenses as copayments in order to access essential medicines even when they are fully covered with health insurance. **Recommendation:** Tanzania needs to establish a regulatory body to control prices of medicines in retail premises. NHIF should also review their price annually, involving all stakeholders for the purpose of capturing fluctuation of medicine prices in the market. By considering that NHIF prices are lower than the retail pharmacy prices, patients are more likely to incur co-payments, and this needs further research to establish its implication on medicine accessibility.

187. **Kisakeni ES. The role of emergency triage vital signs as predictors of outcome for traumatic brain injured patients at Muhimbili National Hospital and Muhimbili Orthopedic Institute. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences.***

Background: Injury is one of the leading causes of death and disability worldwide. More than 5 million people die annually globally due to injuries and it accounts for 9.2% of all deaths in the year. Among all injuries 90% occur in low and middle income countries. In Dar es Salaam about 33/1000 individuals per year are involved in a road traffic injury. Of these injuries, traumatic brain injury accounts for 21% of all traumatic injuries; and is

highly associated with increased mortality. Vital signs are traditionally used in making clinical decisions in Emergency Department triage. Widely used vital signs are blood pressure, heart rate, respiratory rate, Glasgow coma scale and peripheral oxygen saturation. This study was done to evaluate the role of emergency triage vital signs: heart rate, systolic blood pressure, respiratory rate, oxygen saturation, and the Glasgow Coma Scale in predicting outcome of traumatic brain injury patients. **Objectives:** To evaluate which emergency triage vital signs are associated with mortality of traumatic brain injury patients in MNH and MOI **Methodology:** Prospective cohort study design was use in this study. The study was conducted in Muhimbili National Hospital and Muhimbili Orthopedic institute, both located in Dar es Salaam, Tanzania. Sample size was 175 traumatic brain injured patients. A structured questionnaire was used to collect data. A set of vital signs were recorded at ED, then patients were followed up for death and ICU admission as outcomes. The frequencies and percentages were used to describe characteristics of participants and injuries. Then cross tabulations were done to measure association between categorical variables and their significance tested by Chi- test or Fisher's exact test as appropriate. T-test was done to compare means between continuous variables in relation to vicariate outcomes. The primary outcome; the in-hospital mortality and admission to ICU were calculated by proportion/percentage. The multivariate analysis was done by using logistic regression to find how age, GCS, SBP, HR, RR and SPO2 can predict early, late and overall 30 days mortality. Also the same way of analysis was done to find how these variables can predict ICU admission. Ethical clearance was granted from MUHAS Institution Review Board (IRB). Results: A total of 175 TBI patients were enrolled in the study in which 87% were male, the mean age was 32.9 ±12.3 years. Majority 81.1 % (n = 142) of all traumatic brain injured patients were due to motor traffic accidents. Other causes of traumatic brain injury were assaults 13.1% (n = 23) and fall 2.9% (n = 5). In-hospital mortality was16.6% n = 29 whereby 25.1% of all patients admitted ICU. On comparison between mean of individual vital signs among those who survived and those who died, the mean GCS and SPO2 were statistically lower among those who died compared with who survived $p < 0.001$. Also the low means of GCS and SPO2 were associated with ICU admission at both $p < 0.001$ levels of significance. The higher mean respiration rate was associated with ICU admission p =

0.006. Multivariate analysis of predictors of overall in-hospital mortality for TBI patients revealed that, GCS < 9 was strongly associated with mortality OR = 32.8 (p < 0.001). GCS of 9-12 was also significantly associated with mortality of TBI patients OR = 8.2 (p < 0.05) **Conclusions:** The in-hospital mortality of traumatic brain injured patients is high. Majority of in-hospital deaths occurred within first five days of admission. Only GCS showed an ability to predict in-hospital mortality whereby ICU admission can be predicted by low GCS and high systolic blood pressure. **Recommendations:** from this study it is recommended that government and non government organizations should initiate motor traffic injuries prevention programs. The triaging of TBI should be based on Glasgow coma scale. GCS can be used to design referral guideline for other Dar es Salaam hospital to MNH and MOI.

188. **Kisanga BH. Risk Sexual Behaviors and Perceived Susceptibility to HIV Infection among Bar Workers in Kinondoni, Dar es Salaam.** ***Masters of Public Health Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Minimization of sexual risks behaviors associated to HIV infection and promotion of safer sexual practices are necessary component in the struggle against this deadly disease. Such interventions are important to high risk population including bar workers who form a group with significance higher HIV prevalence rate than that of general population. A cross section study design was used for generating data in this study. **Objective:** To identify types of risk sexual behaviors and perceived susceptibility to HIV infections among bar workers in Kinondoni District. **Method:** A random multi stage sampling technique was used to select bars workers to participate in the study. Two divisions among four in Kinondoni district were randomly selected and five wards among 34 from were randomly selected. All bar workers from the selected wards were involved in the study .A total of 424 bar workers were interviewed. Data was generated using structured interviews. **Results:** Findings of this study show that sexual risks behaviors are fairly common among bar workers. While 81% engaged in multiple sexual relationsl1ips, 33.7% practiced anal sex and the prevalence is high in women (36.6%) than men (28.'7%).Almost 27.2% did not use condom and the major reasons for not using condoms were partner refusal 32.3 ,excessive use of alcohol (28.3%) and 26.3% did not have reasons not to use condom. Further, Incentives for engaging in risk sexual behaviors were

receiving money or gifts, drinks or alcohol and securing jobs. A large majority of the bar workers (83.5%) perceived themselves to be highly susceptible to I-HV infection. **Conclusion and recommendation:** According to the nature of the work bar workers are exposed to the sexual risks behaviors which expose them to HIV infection. More of prevention interventions focusing bar workers are needed.

189. **Kishashu Y. Patterns of Severe traumatic work-related injuries in Tanzania. *3rd MUHAS Scientific Conference, 2015.***

Background: Injury is one of the leading causes of death and permanent disability in both developed and developing countries, resulting tremendous personal burden on the injured and their families (Mock et al., 2003). Severe work-related injuries are a serious public health concern that affects people in the most productive years of their lives; representing a special burden to developing countries like Tanzania. **Aim:** The overall aim of this study was to characterize the patterns of severe traumatic work-related injuries, using multiple data sources. **Methods:** The study data were collected from a specialist trauma hospital for a period of one year, in which all adult-traumatic injury cases admitted to the study hospital were asked to participate in the study. Structured interviews were conducted after signing an informed consent form. Screening questions were included and their responses established work-relatedness of an injury case before detailed interview was conducted. **Results:** Of the 1385 traumatic injury cases admitted to the study hospital during the study period, 638 (46%) were identified as work-related. Majority (93%) of the injury cases were males. The country's workforce with peak severe work-related injury burden for both sex were those aged between 26 and 35 years, who had experienced fifteen times (44%) the injury burden experienced by the least affected age group. Section of the population most affected was those aged between 16 and 45 years with more than three quarters of the injury burden. Transportation was the most affected industry with 27% of severe work-related injury burden. Almost half (45%) of the workforce sustained work-related injuries while commuting. **Conclusion:** Our study has revealed new patterns of work-related injuries in Tanzania, suggesting road traffic crashes as the leading cause of work-related injuries. Road traffic safety therefore, becomes an important component of workers safety in Tanzania

190. **Kishimba RS, Mpembeni R, Mghamba J. "Factors associated with major structural birth defects among newborns delivered at Muhimbili National Hospital and Municipal Hospitals in Dar Es Salaam, Tanzania 2011–2012."** ***Pan African Medical Journal.*** **2015; 20(1).**

Introduction: ninety-four percent of all birth defects and 95% of deaths due to the birth defects occur in low and middle income countries, Tanzania among them. In Tanzania there are currently limited birth defects prevention strategies in place due to limited information on factors associated with the occurrence of birth defects. **Methods**: we conducted a case control study that included newborns born from October, 2011 through February, 2012 at 4 participating hospitals. A case was defined as any newborn of a Dar es salaam resident with a neural tube defect,orofacial clefts, limb reduction defects or musculo-skeletal defects (SBD) born during the study period. A control was defined as the next three newborns (delivered after the case) without birth defects. Univariate, bivariate and multivariate analysis were done using Epi Info version 3.5.1. **Results**: a total of 400 newborns participated in the study, 100 cases and 300 controls. Factors associated with higher odds of a SBD included maternal fever (adjusted odds ratio (AOR) = 1.99; 95% confidence interval (CI): 1.14-3.52), maternal hypertension (AOR=3.99; 95% CI: 1.67-9.54), and low birth weight (AOR=3.48; 95% CI: 1.77-6.85). Antimalarial use during pregnancy was protective (AOR=0.48; 95% CI: 0.28-0.84). Folic acid supplementation was protective only in bivariate analysis (OR=0.56; 95% CI: 0.32-0.96). **Conclusion**: maternal fever, hypertension, and low birth weight are associated with higher odds of SBD. Antimalarial use during pregnancy was associated with lower odds of SBD. Early screening of pregnant mothers for hypertension and other causes of low birth weight may reduce SBD in Dar es Salaam.

191. **Kishimba RS, Mpembeni R, Mghamba JM, (et al.) "Birth prevalence of selected external structural birth defects at four hospitals in Dar es Salaam, Tanzania, 2011–2012."** ***Journal of global health.*** **2015; 2-3.**

Background: 94% of all birth defects (BD) and 95% of deaths due to the BD occur in low and middle income countries, many of which are preventable. In Tanzania, there is currently a paucity of BD data necessary to develop data informed prevention activities.

Methods: A cross-sectional analysis was conducted of deliveries identified with BD in the labor ward registers at four Dar es Salaam hospitals between October, 2011 and February, 2012. The birth prevalence of structural BD, case fatality proportion, and the distribution of structural defects associated deaths within total deaths were calculated. **Results:** A total of 28 217 resident births were encountered during the study period. Overall birth prevalence of selected defects was 28.3/10 000 live births. Neural tube defects and indeterminate sex were the most and least common defects at birth (9.9 and 1.1/10 000 live births, respectively). Among stillbirths (66.7%) and deaths that occurred within less than 5 days of an affected live birth (18.5%), neural tube defects were the most frequently associated structural defect. **Conclusion**: Structural BD is common and contributes to perinatal mortality in Dar es Salaam. More than half of perinatal deaths encountered among the studied selected external structural BD are associated with neural tube defects, a birth defect with well–established evidence based prevention interventions. By establishing a population–based BD surveillance program, Tanzania would have the information about neural tube defects and other major structural BD needed to develop and monitor prevention activities.

192. **Kitabi E, Minzi O, Mugusi S, Sasi P, Janabi MY, Mugusi F, Bertilsson L, Aklillu E, Burhenne J. Investigating the determinants of Efavirenz pharmacokinetics after long term treatment with and without rifampicin among Tanzanian HIV/TB and HIV patients.** ***3rd MUHAS Scientific Conference, 2015.***

Background: The extent of pharmacokinetic interaction between rifampicin and efavirenz is still uncertain.**Aim**: We investigated the determinants of efavirenz pharmacokinetics after long term antiretroviral therapy (ART) with and without rifampicin co-treatment. **Methods:** We recruited patients on efavirenz based ART alone (arm1, n=20) and patients on efavirenz/rifampicin based HIV/Tuberculosis co-treatment (arm2, n=34). Intensive blood sampling (at around 0, 1, 3, 6, 12, 16 and 24 hours after taking efavirenz) was performed 16 weeks after initiation of ART and repeated in arm2 patients (n=31) 8 weeks after completion of Tuberculosis treatment. Data were analyzed by nonlinear mixed effects modelling. Treatment arms, sampling occasions, demography, clinical, laboratory and single nucleotide polymorphisms data were tested as potential covariates for the model parameters. **Results:** The patients had median age and weight of

42 years (IQR, 36-50) and 48 Kilograms (IQR, 43-60) respectively. The proportion of CYP2B6*1/*1 and CYP2B6*6/*6 genotypes were 38.2% and 23% respectively. Efavirenz pharmacokinetics was described by 1 compartment model. The estimated population values for absorption rate constant (Ka) and apparent volume of distribution (V/F) were $1.5h^{-1}$ (95%CI, 0.9-2.1) and 696L/70Kg (95%CI, 551-841) respectively. CYP2B6 genetic polymorphism was the only determinant of efavirenz oral clearance (CL/F) being highest in patients with CYP2B6*1/*1 genotype (22.8 L/h/70kg; 95%CI, 16.4-29.2) and 58% (95%CI, 41-75) lower in patients with CYP2B6*6/*6 genotypes. Regardless of genotype, the ratio of efavirenz clearance, arm1 to arm2, during and after co-treatment were 1.2 (95%CI, 0.80 -1.60) and 1.1(95%CI, 0.76-1.46) respectively. **Conclusion:** Our results support the hypothesis that after long term efavirenz treatment the magnitude of its auto induction of metabolism and cellular transport is comparable to that due efavirenz/rifampicin co-treatment. The CYP2B6 genetic polymorphism but not rifampicin co-treatment should be taken into account when adjusting for efavirenz dosage during both ART and HIV/TB co treatment.

193. **Kitomari NI. Prevalence and factors associated with under nutrition among the elderly in Moshi district council, Kilimanjaro region, Tanzania. Master of Public Health,** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es salaam.***

Background: Under-nutrition in the elderly is an outcome of insufficient food intake and repeated infectious diseases. It includes being underweight for one's height, (wasted) and deficient in vitamins and minerals (micronutrient malnutrition). Nutritional well-being plays an essential role in health promotion and maintenance, disease prevention and normal ageing in older population. Tanzania has not been spared from under-nutrition amongst the elderly due to rapid family transition from having extended families to nuclear family thus eroding traditional protection systems of the elderly. Urbanization, globalization and industrialization have also contributed to an increased vulnerability of the elderly. Other factors include inadequate household food security and inadequate food intake**. Objectives:** This study aimed at estimating prevalence and factors associated with under-nutrition among the elderly in Moshi district, Kilimanjaro region. Materials and method a descriptive cross-sectional survey was carried out in May 2014, involving

the elderly in Moshi rural district council, Kilimanjaro region. The minimum required sample size was 431. A multistage cluster sampling procedure was used. Anthropometric measurements were taken using standard procedures. Information about physical factors, dietary pattern, socio-economic and demographic factors were obtained using interviewer-administered questionnaires. Ethical clearance was sought from the Research and Publication Ethical Committee of Muhimbili University of Health and Allied Sciences (MUHAS). Consent was sought from the participants before commencing data collection. Descriptive statistics were used to summarize data, two-by-two tables were drawn and Chi-square test used to ascertain association between categorical variables. Generalized Estimation Equation (GEE) was run in SPSS to identify independent determinants of under nutrition. P-value was set at α=5% to determine statistical significance. **Results:** The study was conducted among the elderly in Moshi district, Kilimanjaro region whereby a total of 431 people were interviewed of which 45.2% were males and 54.8% were females. About 57%of the elderly were aged 70 years old or less and 43.4% above 70 years. The prevalence of under-nutrition was 28.4%. No statistical association was established between age, sex, marital status and under-nutrition in this study. Occupation increased the risk of under-nutrition by a factor of (OR=0.48, 95% CI = 0.26 – 0.89, P = 0.01). The study established statistical significance between status of occupation (employed and non-employed) score and under-nutrition (P = 0.02, OR = 0.47, 95% = 0.25 – 0.86) There was no statistical association between economical status, physical factors and under-nutrition **Conclusion:** The prevalence of under-nutrition among the elderly was low. Dietary factors and occupation were not significantly related to under-nutrition in this population. More studies should be conducted in other areas to establish the prevalence of under-nutrition in the elderly to inform the development of appropriate interventions.

194. Kiwara A, Sirili N, Semakafu A. Human Resources for Health Crisis Fallacy: A crisis of Numbers or Management systems? *3rd MUHAS Scientific Conference,* 2015.

Background: For the last fifteen years Tanzania has reported an increasing crisis of human resources. The main thrust has been that graduate level human resources for health are inadequate. This thrust exists in tandem with an increasing number of graduate level training institutions. These institutions have increased to eight recently. What are

the issues underlying this anomaly? **Objective:** To analyze factors driving an anomaly whereby an increasing output of graduates goes hand in hand with a reported shortage in Tanzania. **Methods:** These included interviews with key informants; postgraduate students; analysis of graduate lists from training institutions and review of published reports. We studied the factors influencing registration after graduation and deployment of graduate level HRH focusing Medical Doctors (MDs), Doctor of Dental Surgery (DDS) and Bachelor of Pharmacy (B.Pharm) from five training institutions and Ministry of Health and Social Welfare (MoHSW). **Results:** Between 2001 and 2010 approximately 2800 MDs, DDS, BPharm were trained. Registration with the MoHSW by the freshly graduated is voluntary, the management information system is inadequate and largely manual, there is lack of co-ordination between the trainers and employers, recruitment budget is limited, those who are finally deployed are not guaranteed accommodation and sometimes they wait for extended periods before they receive first salary. From 2006 to 2010 a total of 482 (38%) of MDs that graduated and reported for internship were not recruited. **Conclusion:** A closer look at the chain of events as narrated above indicates that the crisis in Tanzania as far as graduate human resources for health is concerned is not a crisis of numbers but rather a crisis of management. A better management system put in place should be able to minimize the crisis.

195. Kiwara AD. "University medical education in the twenty first century: Challenges of social determinants of health and no communicable diseases." ***East African Journal of Public Health.*** **2015; 12(2): 1001-1010.**

Background: Research reports indicate that developing countries are experiencing an epidemiological transition consisting of communicable and non-communicable diseases (NCDs) driven by the Social Determinants of Health (SDHs) (1). NCDs cause 60% of deaths globally with 17% estimated increase yearly (1, 5) and are likely to be a major health problem in the twenty first century unless appropriate measures are adopted. The increasing problem of NCDs demands that Medical Education is challenged to better understand the role played by the SDHs if the vision of healthier nations is to be achieved. The SDHs implicated in the etiology of NCDs include unhealthy nutrition, low hygiene, smoking etc. The challenge begins with an analysis of how the Medical Education that is offered at the graduate level prepares graduates in understanding the

role of SDH in NCDs. **Objectives:** To determine the time that Graduate Medical Schools' curricula provide for subjects related to the SDHs; analyse the curricula contents to establish how they relate to the SDHs; explore how the bio medical model may influence the graduates' understanding of SDH role in health. **Methods:** A review of graduate-level medical schools' curricula in East and Central Africa was performed in November and December 2014. **Results:** The findings indicate that the curricula contents and teaching is Bio-medical model driven minimizing SDH contents and understanding, and their link with NCDs. Out of the total training time of graduate physicians less than 10% is provided for SDHs related courses. **Conclusion:** The curricula and training times provided are inadequate for graduates to fully understand SDHs and their role in NCDs. The Bio medical model addresses secondary causes of diseases-micro-organisms-and is inappropriate for the epidemiological transition evident in the twenty first century. A richer model is needed. This paper suggests an SDH and NCD driven curricula review.

196. **Komba AF. Factors Influencing Utilization Of Mental Health Services For Children With Intellectual Disability At Muhimbili National Hospital Dar es Salaam. Master of Sciences (Mental Health Nursing)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Intellectual disability is more accurately considered as disability rather than a disease. Currently, there is no "cure" for an established disability, though with appropriate support and training, most individuals can learn to do many activities in their daily life. WHO estimated that 200 million children suffer from intellectual disability worldwide, yet only a small proportion receives management and treatment in health facilities. The study aimed at determining the factors that influence the utilization of health services for children with intellectual disability (formerly known as "mental retardation") attending mental health clinic at the Muhimbili National Hospital (MNH). **Methods:** The data for this study was collected between March and May 2014. The study employed both quantitative and qualitative research methods. Convenience and purposeful sampling were used to recruit participants in quantitative and qualitative methods respectively. Data collection for quantitative and qualitative were done through self-administered questionnaires and face to face interview respectively. Whereas quantitative data were analyzed by using Statistical Package for Social Sciences (SPSS)

version 16.0, content analysis approach was used for qualitative data. **Results:** Quantitative results: A total of 140 caregivers of children with intellectual disability, were recruited in the study. Majority (70%) of the care givers were females. About half of the children with intellectual disability were males (52.1%). More than three quarters (76.4%) of caregivers identified diseases as the main cause of intellectual disability. The study revealed that there was no significant difference between the age group, gender, education, marital status, occupation, and location of care givers in the utilization of mental health service. Also the results did not show significant difference between utilization of mental health services and number of siblings, onset of disease, and frequency of clinic attendance; however, children with no siblings appeared to lead in attending clinic. On the other hand, there was a significant difference between the child and type of caregivers in the utilization of mental health services ($p<0.001$); most children (89.6%) attended the clinic with their biological parents. **Qualitative results:** The informants perceived that several factors could influence mental health services utilization for children with intellectual disability. Lack of knowledge, false beliefs, social stigma and lack of social support from family members or society and gender imbalance among care givers were described as major challenges which influenced utilization of mental health services for children with intellectual disability. Economic aspects such as low income and poverty among parents/ guardians were perceived to hinder utilization of mental health services. On the contrary, psychological factors such as good support care system from the family and the community, as well as community sensitization from the media and the government through effective mental health policy enforcement were described as important contributor in managing children with intellectual disabilities. Also supportive factors such as good infrastructures which increases accessibility and affordability of the mental health services, was perceived to influence utilization mental health services at MNH. **Conclusion:** Despite some improvements to services as a result of health policies, findings from this study indicate that there are several factors that may influence utilization of mental health services for children with intellectual disability at MNH. The study recommends that the community should be sensitized about mental health services utilization in order to minimize false beliefs and stigma towards intellectual disability. Also it is important to increase

awareness among men to participate as caregivers in seeking health services for children with intellectual disabilities.

197. **Komba MM, Lwoga ET. Government information seeking behaviour of citizens in selected districts of Tanzania. International Research: *Journal of Library and Information Science*. 2015; 5(4):331-54.**

The study assessed the information needs and information seeking patterns of citizens in Tanzania with a particular focus to three districts: Morogoro town, Njombe and Kinondoni districts. Questionnaire survey was self-administered to 450 citizens in selected districts, with a rate of return of 99.6 per cent. Findings revealed that citizens mainly required information on national examination results, which was followed by information on birth, death and marriage certificates, land, and health. Citizens relied on electronic sources and interpersonal communication with neighbors and friends more than explicit sources of information. Certain demographic factors related to education level and respondent's age determined use of various types information sources. Common barriers of citizens' information seeking behaviour were related to poor ICT infrastructure, difficulty in retrieving information, distant location and high costs of information sources. This is a comprehensive study that provides findings which might help the government in Tanzania and other countries with similar conditions to provide effective government information and services to their citizens.

198. **Kweba AN. Exclusive breastfeeding practices and associated factors in mlele district council, katavi region, Tanzania. Master of Public Health, *Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es Salaam*.**

Exclusive breastfeeding is recognized as an important public health tool for the primary prevention of child morbidity and mortality. Consequently, the WHO and UNICEF still recommends exclusive breastfeeding practices for the first six months after delivery, followed by introduction of complementary foods and continued breastfeeding for 24 months or more. In Tanzania, infant feeding still faces several sub- optimal breastfeeding practices with low rates of exclusive breastfeeding up to six months. This contributes to various health problems which increases the infant's morbidity and mortality. The main goal of this study was to determine the level and factors that are associated with exclusive

breastfeeding practices (EBF) among women in Mlele District Council in Katavi Region. A descriptive cross-sectional study using quantitative approach was used. Data was collected at single point in time. The participants were selected using a multistage sampling technique. Data was collected through household visit using questionnaire both closed and open ended questions. Data was coded and analysed using statistical package for social sciences (SPSS). The findings show that all 422 (100%) women breastfed their infants but with low rates 159 (37.7%) of breastfeeding initiation. Furthermore the rates 142 (33.6%) of exclusive breastfeeding up to six months still remain low. Knowledge on infant feeding practice (AOR= 7.5; 95% CI = 3.1, 17.8) is the main predictor of exclusive breastfeeding practice in Mlele District Council. Breastfeeding counselling also found a significant association with the practice of EBF up to six months. The health facility was the main source of information on IYCF. However the socio demographic characteristics of the mother and the child did not find a significant association with the EBF practice up to six months in the District. It is therefore recommended that the main focus should be placed on appropriate and adequate health education, support and encouragement to the mothers of reproductive age. Health workers should be trained to provide the required support, with positive messages encouraging the best infant feeding practices.

199. **Kweyamba E, Muganyizi P. The prevalence of urinary tract infection among pregnant women attending antenatal clinic at Muhimbili national hospital.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Urinary Tract Infection (UTI) is the most common bacterial infection in pregnancy and accounts for considerable morbidities to both the mother and the fetus. There is no recent data on magnitude of UTI in pregnancy at MNH. **Objectives:** The aim of this study was to determine the prevalence of urinary tract infection in pregnancy among pregnant women attending antenatalclinic at MNH.**Methodology:** Descriptive cross-sectional study was conducted at MNH antenatal clinic.A structured questionnaire was used to gather data from pregnant women. Mid-stream urine culture was used to reach the diagnosis of significant bacteriuria. Data were analysed using the SPSS version 20. **Results:** A total of 360 pregnant women were enrolled in this study, of these 128(35.6%) were symptomatic and 232(64.4%) were asymptomatic for UTI. The overall prevalence of UTI among pregnant women at MNH was 6.4%.The prevalence of

symptomatic and asymptomatic bacteriuria was 10.2% and 4.3% respectively. Escherichia coli (39.13%), staphylococcus aureus species (26.09%) and Klebsiella species (21.74%) were commonly isolated. The level of resistance by gram negative organisms to antimicrobial drugs was high to Ampicillin (88.2%), Cotrimoxazole (58.8%), and Nalidic acid (58.8%) but low to Nitrofurantoin (11.8%).Gram positive organisms were completely resistant to Penicillin, mild to Methicilin (16.7%) but not resistant to Erythromycin.**Conclusion:** Symptomatic and asymptomatic bacteriuria among pregnant women is still prevalent in our setting. Escherichia coliis the commonest uropathogen, followed by Staphylococcus aureus. Penicillin is highly resisted by both gram positive and gram negative organisms while Nitrofurantoin remains the drug of choice.

200. **Lämås T, Sandström E, Jonzén J, Olsson H, Gustafsson L. Tree retention practices in boreal forests: what kind of future landscapes are we creating?. *Scandinavian Journal of Forest Research*. 2015. *30*(6): 526-537.**

Tree retention practices promoting biodiversity may reshape future boreal forest production landscapes. Using the Heureka system, scenarios of 0%, 5%, and 20% retained patches at the stand level were projected over 200 years in a 533 ha boreal landscape. Visualizations of future forest states at a landscape scale and a more detailed scale were made based on the projections. The no retention results in no forest >120 years old, and no large trees (diameter at breast height >40 cm for conifers and >35 cm for broadleaved trees) 100 years from now. With retention levels of 5% and 20%, the area of old forest will comprise 7% and 19% of the total area, respectively? The average number of large trees per ha will be 4 and 13, respectively. Deadwood volumes will be 2.5 times higher at 5% retention and 4 times higher at 20% retention compared to no retention. Landscape visualizations indicate that retention patches covering 5% will marginally modify the visual impression, compared to clear-cuts, while 20% cover will create a much more varied landscape. We conclude that the retention approach is essential for restoring natural conditions. Landscape transformation will be slow and depend on starting conditions and retention

201. **Lambdin BH, Cheng B, Peter T, Mbwambo J, Apollo T, Dunbar M, C Udoh I, Cattamanchi A, H Geng E, Volberding P. Implementing implementation science: an approach for HIV prevention, care and treatment programs. *Current HIV research.* 2015; 13(3):244-6.**

Though great progress has been realized over the last decade in extending HIV prevention, care and treatment in some of the least resourced settings of the world, a substantial gap remains between what we know works and what we are actually achieving in HIV programs. To address this, leaders have called for the adoption of an implementation science framework to improve the efficiency and effectiveness of HIV programs. Implementation science (IS) is a multidisciplinary scientific field that seeks generalizable knowledge about the magnitude of, determinants of and strategies to close the gap between evidence and routine practice for health in real-world settings. We propose an IS approach that is iterative in nature and composed of four major components: 1) Identifying Bottlenecks and Gaps, 2) Developing and Implementing Strategies, 3) Measuring Effectiveness and Efficiency, and 4) Utilizing Results. With this framework, IS initiatives draw from a variety of disciplines including qualitative and quantitative methodologies in order to develop new approaches responsive to the complexities of real world program delivery. In order to remain useful for the changing programmatic landscape, IS research should factor in relevant timeframes and engage the multi-sectoral community of stakeholders, including community members, health care teams, program managers, researchers and policy makers, to facilitate the development of programs, practices and polices that lead to a more effective and efficient global AIDS response. The approach presented here is a synthesis of approaches and is a useful model to address IS-related questions for HIV prevention, care and treatment programs. This approach, however, is not a panacea, and we will continue to learn new ways of thinking as we move forward to close the implementation gap.

202. **Lambdin BH, Mbwambo JK, Josiah RM, Bruce RD. Service integration: opportunities to expand access to antiretroviral therapy for people who inject drugs in Tanzania. *Journal of the International AIDS Society*. 2015; 18(1).**

203. **Lambert-Niclot S, George EC, Pozniak A, White E, Schwimmer C, Jessen H, Plettenberg A. Antiretroviral resistance at virological failure in the NEAT 001/ANRS 143 trial: raltegravir plus darunavir/ritonavir or tenofovir/emtricitabine plus darunavir/ritonavir as first-line ART. *Journal of Antimicrobial Chemotherapy*. 2015. Dkv427.**

Objectives. To describe the pattern of drug resistance at virological failure in the NEAT001/ANRS143 trial (first-line treatment with ritonavir-boosted darunavir plus either tenofovir/emtricitabine or raltegravir). **Methods** Genotypic testing was performed at baseline for reverse transcriptase (RT) and protease genes and for RT, protease and integrase (IN) genes for patients with a confirmed viral load (VL) >50 copies/mL or any single VL >500 copies/mL during or after week 32. **Results** A resistance test was obtained for 110/805 (13.7%) randomized participants qualifying for resistance analysis (61/401 of participants in the raltegravir arm and 49/404 of participants in the tenofovir/emtricitabine arm). No resistance-associated mutation (RAM) was observed in the tenofovir/emtricitabine plus darunavir/ritonavir arm, and all further analyses were limited to the raltegravir plus darunavir arm. In this group, 15/55 (27.3%) participants had viruses with IN RAMs (12 N155H alone, 1 N155H+Q148R, 1 F121Y and 1 Y143C), 2/53 (3.8%) with nucleotide analogue RT inhibitor RAMs (K65R, M41L) and 1/57 (1.8%) with primary protease RAM (L76V). The frequency of IN mutations at failure was significantly associated with baseline VL: 7.1% for a VL of <100000 copies/mL, 25.0% for a VL of ≥100000 copies/mL and <500000 copies/mL and 53.8% for a VL of ≥500000 copies/mL (P_{TREND}=0.007). Of note, 4/15 participants with IN RAM had a VL <200 copies/mL at time of testing. **Conclusions** In the NEAT001/ANRS143 trial, there was no RAM at virological failure in the standard tenofovir/emtricitabine plus darunavir/ritonavir regimen, contrasting with a rate of 29.5% (mostly IN mutations) in the raltegravir plus darunavir/ritonavir NRTI-sparing regimen. The cumulative risk of IN RAM after 96 weeks of follow-up in participants initiating ART with raltegravir plus darunavir/ritonavir was 3.9%.

204. **Lamm SH, Steinemann DC, Linke GR. "Total inverse transgastric resection with transpolar specimen removal." *Surgical endoscopy.* 2015; 29(11): 3363-3366.**

Background: Laparoscopic local excision is accepted for gastrointestinal stromal tumors (GIST) and benign lesions of the stomach. Yet, tumors at the gastro esophageal junction, on the posterior wall, or in the distal antrum are difficult to approach. Such tumors often must be exposed via gastrotomy or using a rendezvous maneuver. Our method of total intragastric laparoscopic resection using 'pneumogastrum', rigid laparoscope, and conventional laparoscopic instruments is described in an intuitive video. **Methods** Two cases of total inverse transgastric resection involved resection of a submucosal GIST, one at the front wall of the cardia and the other on the posterior wall of the antrum. The third case required excision of a large prepyloric cystic lesion leading to a gastric outlet stenosis. After insertion of three trocars under laparoscopic control, a further trocar was introduced into the stomach and 'pneumogastrum' was established. Two additional 5-mm trocars were intragastrally placed. Intragastric endoscopy with a rigid optic provided an excellent view. The tumor was exposed resected with a linear stapler. The specimen was inserted into an Endo Pouch™ which was sutured to an orally inserted gastric tube. The Endo Pouch™ was gently pulled transorally. After removal of the intragastric trocars, the entrance points were laparoscopic ally closed**. Results** From the first and second cases, we retrieved GIST tumors. In the third case, we retrieved a gastritis cysticaprofunda. Postoperative course was uneventful. **Conclusions** Gastric GIST should be resected laparoscopically if negative margins are safely achieved regardless of its size. Tumors at the frontwall and exophyticbackwall GIST are addressed by laparoscopic wedge resection. Tumors at the gastrojejunal junction, in the prepyloric region, and fundus as well as sub mucous GIST of the gastric backwall are best approached by intragastric laparoscopic resection. Transoral specimen retrieval is an interesting option in smaller tumors**.**

205. **LeFevre AE, Mpembeni R, Chitama D, (et al.) "Profile, knowledge, and work patterns of a cadre of maternal, newborn, and child health CHWs focusing on preventive and promotive services in Morogoro Region, Tanzania."** ***Human resources for health*****.2015. 13(1): 98.**

Background: Despite impressive decreases in under-five mortality, progress in reducing maternal and neonatal Mortality in Tanzania has been slow. We present an evaluation of a cadre of maternal, newborn, and child healthcommunity health worker (MNCH CHW)

focused on preventive and promotive services during the antenatal andpostpartum periods in Morogoro Region, Tanzania. Study findings review the effect of several critical designelements on knowledge, time allocation, service delivery, satisfaction, and motivation. **Methods:** A quantitative survey on service delivery and knowledge was administered to 228 (of 238 trained) MNCH CHWs. Results are compared against surveys administered to (1) providers in nine health centers (n = 88) and (2) CHWs (n = 53) identified in the same districts prior to the program's start. Service delivery outputs were measured by registerdata and through a time motion study conducted among a sub-sample of 33 randomly selected MNCH CHWs. **Results:**Ninety-seven percent of MNCH CHWs (n = 228) were interviewed: 55% male, 58% married, and 52% withsecondary school education or higher. MNCH CHWs when compared to earlier CHWs were more likely to beunmarried, younger, and more educated. Mean MNCH CHW knowledge scores were <50% for 8 of 10 MNCHdomains assessed and comparable to those observed for health center providers but lower than those for earlierCHWs. MNCH CHWs reported covering a mean of 186 households and were observed to provide MNCH servicesfor 5 h weekly. Attendance of monthly facility-based supervision meetings was nearly universal and focused largelyon registers, yet data quality assessments highlighted inconsistencies. Despite program plans to provide financialincentives and bicycles for transport, only 56% of CHWs had received financial incentives and none received bicycles **Conclusions:** Initial rollout of MNCH CHWs yields important insights into addressing program challenges. The social Profile of CHWs was not significantly associated with knowledge or service delivery, suggesting a broader range ofcommunity members could be recruited as CHWs. MNCH CHW time spent on service delivery was limited butcomparable to the financial incentives received. Service delivery registers need to be simplified to reduceinconsistencies and yet expanded to include indicators on the timing of antenatal and postpartum visits.

206. LeFevre AE, Mpembeni R, George AS. "Profile, knowledge, and work patterns of a cadre of maternal, newborn, and child health CHWs focusing on preventive and promotive services in Morogoro Region, Tanzania." ***Human resources for health.*****2015; 13(1): 98.**

Background: Despite impressive decreases in under-five mortality, progress in reducing maternal and neonatalmortality in Tanzania has been slow. We present an evaluation of a cadre of maternal, newborn, and child healthcommunity health worker (MNCH CHW) focused on preventive and promotive services during the antenatal andpostpartum periods in Morogoro Region, Tanzania. Study findings review the effect of several critical designelements on knowledge, time allocation, service delivery, satisfaction, and motivation. **Methods:** A quantitative survey on service delivery and knowledge was administered to 228 (of 238 trained) MNCH CHWs. Results are compared against surveys administered to (1) providers in nine health centers (n = 88) and (2) CHWs (n = 53) identified in the same districts prior to the program's start. Service delivery outputs were measured by registerdata and through a time motion study conducted among a sub-sample of 33 randomly selected MNCH CHWs. **Results:**Ninety-seven percent of MNCH CHWs (n = 228) were interviewed: 55% male, 58% married, and 52% withsecondary school education or higher. MNCH CHWs when compared to earlier CHWs were more likely to beunmarried, younger, and more educated. Mean MNCH CHW knowledge scores were <50% for 8 of 10 MNCHdomains assessed and comparable to those observed for health center providers but lower than those for earlierCHWs. MNCH CHWs reported covering a mean of 186 households and were observed to provide MNCH servicesfor 5 h weekly. Attendance of monthly facility-based supervision meetings was nearly universal and focused largelyon registers, yet data quality assessments highlighted inconsistencies. Despite program plans to provide financialincentives and bicycles for transport, only 56% of CHWs had received financial incentives and none received bicycles. **Conclusions:** Initial rollout of MNCH CHWs yields important insights into addressing program challenges. The social Profile of CHWs was not significantly associated with knowledge or service delivery, suggesting a broader range ofcommunity members could be recruited as CHWs. MNCH CHW time spent on service delivery was limited butcomparable to the financial incentives received. Service delivery registers need to be simplified to reduceinconsistencies and yet expanded to include indicators on the timing of antenatal and postpartum visits.

207. Lekule J, Outwater A, Abeid R. A Burned Child's Pain during treatment as assessed by the Child, Caregiver and Nurse. *3rd MUHAS Scientific Conference*, 2015.

Background: Burn injuries in children remain a significant public health concern in Tanzania, where pain is the most common symptom experienced. The scoring of pain in under-ten year old children with burn injuries is unknown in Tanzania.**Aim:** To assess pain scoring in children with burn injuries admitted at KCMC hospital **Methods:** A descriptive cross-sectional study was conducted at KCMC hospital, in May and June, 2013. Information about the child was obtained from the caretakers by using semi-structured questionnaire. Also all 47 caretakers of recruited children were requested to rate the child's pain. Interview by using unstructured questionnaire was conducted in 23 nurses caring for children with burn injuries and they were also requested to rate the child's pain on a VAS scale. Pain was measured by using VAS for children 6 years and above, nurses and caretakers and FLACC for children below 6 years old. Data was analyzed using SPSS version 20 software.**Results:** Most children were under 4 years old and most of them 30(63.8%) were males. A vast majority 40(85.1%) were from rural areas. Pain score in children ranged from 5 to 10. Most children 29(61.70%) were in worst pain during wound dressing. Severe pain was measured in 15(31.91%) of children and significant pain in 3(6.38%). More children with deep and full thickness burns experienced severe pain than those with superficial burn during changing of dressing. There was no significant difference between the mean pain score done by children and that done by caretaker. A significant difference in pain score was observed between children and nurses ($p<0.0018$). There was no standard and common method used by nurses to assess children's pain.**Conclusion:** Pain scoring was comparable between children who had sustained burn injuries and parents/caregivers but was different between the children and the nurses.

208. **Lembuka HM**. **Knowledge and Practice of Midwives on Active Management of Third Stage of Labor in Dar Es Salaam, Tanzania. Master of Science in Nursing (Critical Care and Trauma)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Postpartum Hemorrhage (PPH) is the major cause of maternal morbidity and mortality worldwide with the highest incidence in developing countries. In Tanzania Maternal mortality ratio (MMR) stands at 410 /100,000 live births where PPH alone accounts for 25-28% of all maternal deaths (8). Few studies done on this topic showed

limited knowledge and practice on PPH prevention and management using AMTSL among midwives. There is no enough information on the current level of knowledge and practice of AMTSL among midwives in Tanzania. **Objective:** This study sought to know the knowledge and practice level of midwives on AMTSL in public hospitals namely Temeke, Amana and Mwananyamala in Dar es Salaam region. **Methods:** A descriptive cross- sectional study using quantitative research method was used in the assessment of knowledge and practice. Data was collected from April through May 2014. Additional data was collected in February 2015. A convenience sampling technique was used and a total of 105 midwives were recruited into the study. Knowledge among the 105 practicing registered midwives working in maternity wards was tested by using questionnaire with 15 questions. Practice was assessed only in the 35 midwives working in labor wards using an observational checklist with 19 items. Out of 122 total number of midwives who worked in maternity wards, 17 of them did not participate in this study as they were either on their annual leave, seminar or were not willing to participate. Knowledge and practice were expressed as percentages of correct responses obtained by the participants and categorized as adequate or inadequate respectively. Data were coded and entered into SPSS version 20 for descriptive and inferential statistics. Results: Of 105, midwives assessed, majority were female (90.5%); mean age was 33.8±6.9 (range 21-49 yrs); some (46.7%) of them were in the age group 31-40 yrs. In terms of professional training in midwifery, about half (49.9%) of them had attained a diploma level with work experience of mainly 1-5 yrs (56.2%). Generally knowledge and skills on prevention and management of PPH using AMTSL among midwives assessed was observed to be inadequate. A majority 94.3% of midwives demonstrated inadequate knowledge and 71.4% had inadequate skills on AMTSL. However, when considering the performance of participants on individual items of knowledge and skills, there were variable responses with some items getting better scores while others getting poor scores? Of the knowledge items, the proportional of participants who responded correctly were lowest in steps of managing a patient with PPH (8.6%) and harmful practices when performing AMTSL (36.2%) while among the skills items that were poorly done included not waiting for the gush of blood before performing CCT (45.7%), and need to reassess uterine contraction after every 15 minutes after delivery and then two hourly (45.7%). Regarding the three

components of AMTSL according to FIGO/ICM most (more than 50%) participants got correct responses. The proportions of participants who had correct responses (in skills checklist) were; Oxytocin administration (85.7%), CCT (94.3%) and uterine massage (71.4%). **Conclusion:** Knowledge and skills of AMTSL among midwives in Dar es Salaam public hospitals were inadequate. **Recommendation:** These findings indicate that there is a need for Policy makers to arrange periodic review of pre-service midwifery training curricula to assess whether its contents provide midwives with skills relevant to the obstetric care.

209. **Leshabari M, Mmbaga E, Moen K, Mpembeni R. Risk Behaviors and Perceived Susceptibility to HIV Infection among MSM in Dar es Salaam, Tanzania. *3rd MUHAS Scientific Conference,* 2015.**

Background: Rates of HIV infection in this population subgroup are much higher than that of the general population in almost all African countries where some data is available. However, there are hardly any officially organized interventions targeting MSM possibly due to the assumption that planned intervention for the general population would also be accessed and used by this population sub-group. **Aim**: To determine behaviors which increase risks to HIV infection were among MSM. **Methodology:** Respondent driven sampling was used to generate data from 753 MSM in Dar es Salaam, Tanzania. Behaviors which increased risks to HIV infection were collected through questioners. Each respondent was also asked to rank the extent he believed was susceptible to HIV infection and the results obtained were as follows: **Results:** Many (55%) respondents had female sexual partners. Sex with multiple male and female partners was also fairly common. Almost 54% had two or more female partners three months before the interview and over 84% had two or more male partners during the same period. Protection against consequences of unprotected sex was more common with male (45.2%) than female (23%) sexual partners the last time they had sex. A few respondents (2%) participated in group sex with members per group varying from 2 to 7. Alcohol use was reported by 66% and 80% of them said they were drunk the last time they had sex. Nearly 20% had exposure to drugs (mainly marijuana) and a third of them were under the influence of drugs the last time they had sex. Despite the reported high risk behaviors 18.7% believed their chance of getting HIV infected was small.

Conclusion: High risk behaviors that put MSM in Dar es Salaam at risk to HIV infection are fairly common, but many still believe that their chance of getting infected is small.

210. **Leshabari M, ChaloNabirye R, Mukamana D. "Looking forward to the East African Countries' Collaboration in Nursing and Midwifery Education, Practice and Legislation."** ***Rwanda Journal.*** **2015; (2): 69-73.**

In 2014, the East African Community (EAC) partner states began to explore the possibility of harmonizing nursing and midwifery education, practice and legislation. A study to examine harmonization was commissioned and variations in nursing and midwifery education, practice and legislation were discussed among academic institutions in the region. These variations included: admission requirements; duration of training for the same academic programs; and outcome competencies of the graduates. These differences have hindered the labor mobility of nurses and midwives in the region and provide solid rationale for the reciprocal recognition of nurses and midwives in the EAC through the harmonization process. The *Global innovations in Nursing and Midwifery Education, Research and Practice Conference held in January 2015 in Kigali Rwanda* provided an opportunity for University Deans in the East African region to dialogue and examine possible areas of collaboration between academic institutions in the East African (EA) region using a sustainable partnership model for the advancement of nursing and midwifery education, research and practice. This paper discusses the possibilities to achieve East African collaboration through adapting *Collaborative Change: an Interdependent Model of Nursing Education* and experiences from the *Norads Program for Master's Studies (NOMA) Regional Masters in Nursing* initiative.

211. **Lijohi FA Risk Factors for Severe Early Neonatal Morbidity among Term neonates Admitted at Muhimbili National Hospital, Tanzania-A Nested Case 'Control Study. Master Medicine (Obstetrics and Gynecology)** ***Dissertation 2015.Muhimbili University of Health and Allied Sciences.***

Background: Early neonatal period is the first seven clays of life, and the highest risky period for adverse neonatal outcome. Worldwide about 4 million neonatal deaths occur yearly, three quarters of these deaths occur in the first week. Neonates with severe morbidity are at increased risk of mortality than the rest. Studies addressing risk factors

for severe I early neonatal morbidity pay more attention to premature babies with less attention to term neonates. Risk factors could differ substantially because term neonates are expected to be healthier due to their physiological maturity. **Objective:** The focus of this study was on term babies who were admitted at MN]-I Neonatal Care Unit within seven days of life with the objective to identify risk factors for their severe morbidity. **Methods:** This was a nested case control study conducted on all term neonates who were admitted within seven days of birth during the study period from September to December. We adapted the MAIN score tool as a checklist during data collection and follow up, and presence of death or any one or more of the selected morbidity items within seven days of delivery was used to distinguish between severely morbid neonates and less severely morbid neonates. Data were obtained from review of neonatal unit case notes, review of RCH4 cards, delivery records and questionnaire interviews with the mothers. Using SPSS version 20 computer program, univariate regression models were run to determine Odds ratios and 95% Confidence Intervals as estimates of the risk for severe morbidity 0 and clinical importance of the individual risk factors respectively. Multivariate analysis was then performed to determine the independent risk factors for severe morbidity in the final Model. In all analyses the p value of 0.05 or less were taken as statistically significant. Ethical clearance for this study was obtained from MUHAS Senate Research and Publication Committee and Muhimbili National Hospital. Results: During the study period a total of 2104 newborns were admitted at MNH NCU. Of these 1624 did not meet the criteria for the study. The analysis was done on 463 term neonate of whom 220(47.5%) were diagnosed to have severe early neonatal morbidity. Incidence of early neonatal morbidity for term neonates was 255 .7 per 1000 neonates. Low birth weight in term babies and urinary tract infections during pregnancy were independently associated with severe early neonatal morbidity. Severe early neonatal morbidity of a term neonate with no congenital anomaly was a serious adverse outcome with high proportion at MNH, and warrants further investigations. Furthermore studies are recommended for identifications of more risk factors.

212. Lingala SG, Edward D, Mathews J. "Deformation corrected compressed sensing (DC-CS): a novel framework for accelerated dynamic MRI." ***Medical Imaging, IEEE Transactions on. 2015;*** **34(1): 72-85.**

We propose a novel deformation corrected compressed sensing (DC-CS) framework to recover contrast enhanced dynamic magnetic resonance images from undersampled measurements. We introduce a formulation that is capable of handling a wide class of sparsity/compactness priors on the deformation corrected dynamic signal. In this work, we consider example compactness priors such as sparsity in temporal Fourier domain, sparsity in temporal finite difference domain, and nuclear norm penalty to exploit low rank structure. Using variable splitting, we decouple the complex optimization problem to simpler and well understood sub problems; the resulting algorithm alternates between simple steps of shrinkage-based denoising, deformable registration, and a quadratic optimization step. Additionally, we employ efficient continuation strategies to reduce the risk of convergence to local minima. The decoupling enabled by the proposed scheme enables us to apply this scheme to contrast enhanced MRI applications. Through experiments on numerical phantom and in vivo myocardial perfusion MRI datasets, we observe superior image quality of the proposed DC-CS scheme in comparison to the classical k-t FOCUSS with motion estimation/correction scheme, and demonstrate reduced motion artifacts over classical compressed sensing schemes that utilize the compact priors on the original deformation uncorrected signal.

213. **Litorp H, Mgaya A, Mbekenga CK. "Fear, blame and transparency: Obstetric caregivers' rationales for high caesarean section rates in a low-resource setting." *Social Science & Medicine.* 2015; (143): 232-240.**

In recent decades, there has been growing attention to the overuse of caesarean section (CS) globally. In light of a high CS rate at a university hospital in Tanzania, we aimed to explore obstetric caregivers' rationales for their hospital's CS rate to identify factors that might cause CS overuse. After participant observations, we performed 22 semi-structured individual in-depth interviews and 2 focus group discussions with 5–6 caregivers in each. Respondents were consultants, specialists, residents, and midwives. The study relied on a framework of naturalistic inquiry and we analyzed data using thematic analysis. As a conceptual framework, we situated our findings in the discussion of how transparency and auditing can induce behavioral change and have unintended effects. Caregivers had divergent opinions on whether the hospital's CS rate was a problem or not, but most thought that there was an overuse of CS. All caregivers rationalized the high CS rate by

referring to circumstances outside their control. In private practice, some stated they were affected by the economic compensation for CS, while others argued that unnecessary CSs were due to maternal demand. Residents often missed support from their senior colleagues when making decisions, and felt that midwives pushed them to perform CSs. Many caregivers stated that their fear of blame from colleagues and management in case of poor outcomes made them advocate for, or perform, CSs on doubtful indications. In order to lower CS rates, caregivers must acknowledge their roles as decision-makers, and strive to minimize unnecessary CSs. Although auditing and transparency are important to improve patient safety, they must be used with sensitivity regarding any unintended or counterproductive effects they might have.

214. Liu E, Makubi A, Drain P. (et al.) "Tuberculosis incidence rate and risk factors among HIV-infected adults with access to antiretroviral therapy." ***AIDS (London, England).*** **2015; 29(11): 1391-1399.**

Objectives: To determine the incidence rate and risk factors of tuberculosis (TB) among HIV-infected adults accessing antiretroviral therapy (ART) in Tanzania. Design A prospective observational study among HIV-infected adults attending 47 HIV clinics in Dar es Salaam. **Methods:** We estimated TB incidence rates among HIV-infected patients prior to and after ART initiation. We used Cox proportional hazard regressions to determine the predictors of incident TB among HIV-infected adults enrolled in the HIV care and treatment program. **Results:** We assessed 67,686 patients for a median follow-up period of 24 (interquartile range: 8–49) months; 7,602 patients were diagnosed with active TB. The TB incidence rate was 7.9 (95% Confidence Interval (CI), 7.6–8.2)/100 person-years prior to ART initiation, and 4.4(95%CI, 4.2–4.4)/100 person-years for patients receiving ART. In multivariate analyses, patients on ART in the first 3 months had a 57% higher risk of TB (Hazard Ratio: 1.57, 95%CI: 1.47–1.68) compared to those not on ART, but the risk significantly decreased with increasing duration of ART. Risk factors for incident TB included being male, having low body mass index or middle upper arm circumference, lower CD4 cell count, and advanced WHO disease stage. There was seasonal variation for incident TB, with higher risk observed following the rainy seasons (May, June, and November). **Conclusion:** In TB endemic regions, HIV-infected patients initiating ART, particularly males and those with poor nutritional status,

should be closely monitored for active TB in the months following ART initiation. In addition to increasing the access to ART, interventions should be considered to improve nutritional status among HIV-infected patients.

215. **Llorens F, Zafar S, Ansoleaga B. "Subtype and regional regulation of prion biomarkers in sporadic Creutzfeldt–Jakob disease."** ***Neuropathology and applied neurobiology*****. 2015: 41(5); 631-645.**

Aims: Creutzfeldt–Jakob disease (CJD) is a rapid progressive neurological disease leading to dementia and death. Prion biomarkers are altered in the cerebrospinal fluid (CSF) of CJD patients, but the pathogenic mechanisms underlying these alterations are still unknown. The present study examined prion biomarker levels in the brain and CSF of sporadic CJD (sCJD) cases and their correlation with neuropathological lesion profiles. **Methods:** The expression levels of 14-3-3, Tau, phospho-Tau and α-syncline were measured in the CSF and brain of sCJD cases in a subtype- and region-specific manner. In addition, the activity of prion biomarker kinases, the expression levels of CJD hallmarks and the most frequent neuropathologicalsCJD findings were analysed. **Results***:* Prion biomarkers levels were increased in the CSF of sCJD patients; however, correlations between mRNA, total protein and their phosphorylated forms in brain were different. The observed downregulation of the main Tau kinase, GSK3, in sCJD brain samples may help to explain the differential phospho-Tau/Tau ratios between sCJD and other dementias in the CSF. Importantly, CSF biomarkers levels do not necessarily correlate with sCJDneuropathological findings. Interpretation.Present findings indicate that prion biomarkers levels in sCJD tissues and their release into the CSF are differentially regulated following specific modulated responses, and suggest a functional role for these proteins in sCJD pathogenesis.

216. **Lundmark J, Sandström E. The effects of intrinsic motivation, extrinsic motivation and toolkits onuser participation in User-generated content for video games: A quantitative study of product development in online communities. 2015.**

In this thesis we will discuss the subject of user participation in the development process of products, specifically video games, through a concept called User-generated content. Product development demands speed and flexibility in the development process and it has

been suggested that managers should revise the process of product development to become more flexible and integrate the consumer in increasingly more steps of the process. Video games will often be modified after its release. In fact, it has been estimated that between 95% and 100% of the files in most software will be modified after its initial release. User participation, referring to behaviors and activities performed in a system development process, is a definite feature for websites that consider their content user-generated. Customers who participate in online video game UGC are actively changing games, modifying existing content and creating new content related to all aspects of the game bit by bit, while also contributing this content to others, usually over the internet through some sort of video game content sharing site. User participation is determined by a user's ability to participate and his motivation to do so, the latter of which is the focus of this thesis. Two major branches of study can be distinguished from motivational theory; intrinsic motivation and extrinsic motivation. The main purpose of this thesis is to examine the effects of motivational factors of intrinsic motivation, extrinsic motivation and toolkits that motivate customers to participate in UGC for video games. We examine what effects intrinsic motivational factors enjoyment, altruism and continuance commitment, as well as extrinsic motivational factors rewards, future rewards, personal need and reputation have on user participation. The toolkits approach to product development is a common user-oriented product development **method** in the video game industry, which allows users to modify and create content for games. We will also study what effects the usefulness and ease of use of these toolkits have on user participation. **Conducting** a quantitative study, we presented a questionnaire to members of four online video game UGC communities; Steam Workshop, Game Banana, ModDB and MODS online, in order to assess users' attitudes of aforementioned concepts in relation to their user participation. We have not found any relevant research that examines both motivational factors' and toolkits' effects on user participation in video game UGC. With recent turbulent developments in the video game industry regarding monetary compensation for UGC, we decided to put great weight on this area in this thesis, both through our review of previous literature and regarding the results of our study. Our multiple regression analysis showed that toolkit ease of use, intrinsic motivational factors enjoyment and altruism, as well as extrinsic motivational factor

reputation have significant positive effects on user participation, while toolkit usefulness showed a significant negative effect on user participation. We also find trends suggesting the positive effect of continuance commitment on user participation, and, finally, a trend suggesting the negative effect of rewards on user participation.

217. **Lundvig DM, Pennings SW, Brouwer KM, Mtaya-Mlangwa M, Mugonzibwa EA, Kuijpers-Jagtman AM, Wagener A. Curcumin induces differential expression of cytoprotective enzymes but similar apoptotic responses in fibroblasts and myofibroblasts.** ***Experimental cell research*****. 2015; 330 (2): 429-441.**

Excessive extracellular matrix (ECM) deposition and tissue contraction after injury can lead to esthetic and functional problems. Fibroblasts and my fibroblasts activated by transforming growth factor (TGF)-β1 play a key role in these processes. The persistence of (myo) fibroblasts and their excessive ECM production and continuous wound contraction have been linked to pathological scarring. The identification of compounds reducing my fibroblast survival and function may thus offer promising therapeutic strategies to optimize impaired wound healing. The plant-derived polyphenol curcumin has shown promising results as a wound healing therapeutic in vivo; however, the exact mechanism is still unclear. In vitro, curcumin induces apoptosis in various cell types via a reactive oxygen species (ROS)-dependent mechanism. Here we treated human dermal fibroblasts with TGF-β1 to induce my fibroblast differentiation, and compared the responses of fibroblasts and my fibroblasts to 25 μM curcumin. Curcumin induced caspase-independent apoptosis in both fibroblasts and my fibroblasts in a ROS-dependent manner. Oxidative stress leads to the induction of several antioxidant systems to regain cellular homeostasis. We detected stress-induced induction of hemeoxygenase (HO)-1 in fibroblasts but not in my fibroblasts following curcumin exposure. Instead, my fibroblasts expressed higher levels of heat shock protein (HSP) 72 compared to fibroblasts in response to curcumin, suggesting that TGF-β1 treatment alters the stress-responses of the cells. However, we did not detect any differences in curcumin toxicity between the two populations. The differential stress responses in fibroblasts and my fibroblasts may open new therapeutic approaches to reduce my fibroblasts and scarring.

218. **Lundvig DM, Pennings SW, Brouwer KM, Mtaya-Mlangwa M, Mugonzibwa E, Kuijpers-Jagtman AM, Von den Hoff JW. Cytoprotective responses in HaCaT keratinocytes exposed to high doses of curcumin. *Experimental cell research*. 2015; 336 (2): 298-307.**

Wound healing is a complex process that involves the well-coordinated interactions of different cell types. Topical application of high doses of curcumin, a plant-derived polyphone, enhances both normal and diabetic cutaneous wound healing in rodents. For optimal tissue repair interactions between epidermal keratinocytes and dermal fibroblasts are essential. We previously demonstrated that curcumin increased reactive oxygen species (ROS) formation and apoptosis in dermal fibroblasts, which could be prevented by pre-induction of the cytoprotective enzyme hemeoxygenase (HO)-1. To better understand the effects of curcumin on wound repair, we now assessed the effects of high doses of curcumin on the survival of HaCaT keratinocytes and the role of the HO system. We exposed HaCaT keratinocytes to curcumin in the presence or absence of the HO-1 inducers heme (FePP) and cobalt protoporphyrin (CoPP). We then assessed cell survival, ROS formation, and caspase activation. Curcumin induced caspase-dependent apoptosis in HaCaT keratinocytes via a ROS-dependent mechanism. Both FePP and CoPP induced HO-1 expression, but only FePP protected against curcumin-induced ROS formation and caspase-mediated apoptosis. In the presence of curcumin, FePP but not CoPP induced the expression of the iron scavenger ferritin. Together, our data show that the induction of ferritin, but not HO, protects HaCaT keratinocytes against cytotoxic doses of curcumin. The differential response of fibroblasts and keratinocytes to high curcumin doses may provide the basis for improving curcumin-based wound healing therapies.

219. **Lundvig DMS, Penning SWC, Brouwer KM, Mlangwa MM, Mugonzibwa EA, Kuijpers-jagtman AM Von den Hoff JW, Wagener FADTG. "Curcumin induces differential expression of cytoprotective enzymes but similar apoptotic responses in fibroblasts and my fibroblasts." *Experimental cell research*. 2015: 330 (2); 429-441.**

Excessive extracellular matrix (ECM) deposition and tissue contraction after injury can lead to esthetic and functional problems. Fibroblasts and myofibroblasts activated by transforming growth factor (TGF)-β1 play a key role in these processes. The persistence

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220. **Luoga WP. Indications and complications of intestinal stomas at muhimbili national hospital, dar es salaam. Master of Public Health, *Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

Background: The burden of stroke is increasing in many low- and middle-income countries (LMIC).Stroke and many non-communicable diseases (NCDs) are now targeted public health priorities in these regions due to high fatality rates and overwhelming resource incurred by the health systems. There is scarce data on the aspect of health workers and stroke risk factors screening frequency. Health workers in third world country like Tanzania are scarce, most of the time they are overwhelmed by clients and full of stress, this leads to lack of physical activities. Because they are not immune to non-communicable diseases they end up suffering conditions which they treat and educate their clients. **Objective:** Therefore this study aimed at measuring prevalence of

hypertension and frequency of stroke risk factors screening among health workers particularly medical doctors and nurses in hospitals, Dar es Salaam Tanzania. **Methods:** This was a descriptive cross-sectional study which was conducted on August 1st 2014 to June 1st 2015, in public hospitals. The target population was all medical personnel (doctors and nurses) working in public and private hospitals in Dar es Salaam. The dependent variables were stroke and hypertension, while the independent variables were risk factors (Body mass index, Hypertension, habit of measuring BP, headache, smoking, and habit of not doing exercise, past stroke history, diabetes and alcohol). The estimated sample size in the study was 295 subjects, sampling method used was cluster sampling (first stage random sampling and second stage cluster sampling; tool was standardized closed questions questionnaire. The collected data were analyzed using Statistical Package of Social Sciences (SPSS) version 16. This study estimated the prevalence of hypertension, as a main risk factor of stroke and the frequency for other stroke risk factors among medical doctor/nurses in hospital in Dar es Salaam. Results: A total of 250 health workers accepted to be interviewed, of these 109(43.6%) were males and with141 (56.4 %) patients aged between 40 and below were 201(80.4%), while above 40 were 49(19.6%). Among the interviewed individuals 229(91.6%) were from public hospitals, came from Ilala 197(78.8%), general practitioners and nurses were 149(59.6%) and (35.6%) respectively. Married health workers were 124(49.6%), obese individuals were 89(14.8%) respectively, hypertension, headache and smoking accounted for 18(7.8%), 25(10%) and 12(4.8%) respectively. As per regression analysis risk factors for stroke among the participants were history of stroke 2(0.8%), diabetes 7(2.8%), alcohol 102(40.8%) and habit of not doing exercise; more than six months or not at all was68 (27.2%). Women were four times less likely to measure blood pressure, P = <0.001, Adjusted odds ratio (AOR) =4. Age groups of above 40 were less likely by 0.5 of not doing exercise as compared to health workers above 40 years of age. P value 0.009, AOR = 0.5, 95%CI does not include one. Also age group of above 40 years was associated with hypertension by 2times P value<0.001, AOR = 2, 95%CI does not include one. **Conclusion:** Data suggests that the risk for Stroke is at epidemic in a well-educated physicians and nurses, who are in the high income and health education. Prevalence of hypertension among health workers is significantly high, medical check-ups in health

workers is low, stroke risk factors proportion is higher in private hospital health workers as compared to public health workers. **Recommendations:** There is a need to address the burden of stroke among health workers, because of available risk factors among them. To achieve this, risk factors of stroke should be considered they are of public importance. They can be addressed through the four best buys which include; diet, smoking, obesity and physical activities. This study was hospital based, done in only four hospitals; Muhimbili National hospital located in Dar es Salaam, Temeke hospital, TMJ A and regency hospitals. So further studies are required both quantitatively and qualitatively, to find out how behaviour change can be attained among health workers for prevention for stroke risk factors.

221. **Lutale JK, (et al). "Prevalence and covariates of electrocardiographic left ventricular hypertrophy in diabetic patients in Tanzania."** ***South African Journal of Diabetes and Vascular Disease.*** **2015; 12(2): 72-78.**

Background Left ventricular hypertrophy (LV H) has been demonstrated to be a powerful predictor of cardiovascular (CV) morbidity and mortality in diabetic as well as hypertensive patients. However, less is known about the prevalence of electrocardiographic LV H (ECG-LV H) and its relation to other CV risk factors in diabetic patients in sub-Saharan Africa. Therefore, the aim was to assess the prevalence of ECG-LV H in diabetic patients in Dar es Salaam, Tanzania, and its relation to other cardiovascular risk factors. **Methods:** Two hundred and thirty-seven consecutive patients attending the Muhimbili diabetic clinic were studied. ECG-LVH was diagnosed by Sokolow-Lyon voltage and Cornell voltage-duration product criteria. Q waves, ST-segment deviation, T-wave abnormalities and intraventricular conduction defects were classified by the Minnesota codes. Blood pressure (BP), serum cretonne, cholesterol and triglyceride levels, and HbA_{1c} and urinary albumin and creatinine concentrations were determined. **Results:** The prevalence of LV H in patients was 16% by either ECG criteria; 12.2% by Sokolow-Lyon and 5.1% by Cornell product criteria. Patients with LV H had significantly higher systolic and mean BP and pulse pressure, and a higher prevalence of ST-segment abnormalities, T-wave inversion and albuminuria than those without LV H (all $\boldsymbol{p} < 0.05$). In multivariate logistic regression analysis, systolic BP was the only independent predictor of ECG-LV H. The prevalence of ECG-LV H increased

by 15% per 10 mmHg higher systolic BP [OR 1.151 (95% CI 1.00921.314), $p < 0.05$]. Clustering of cardiovascular risk factors differed significantly between type 1 and type 2 diabetes patients. On average, type 1 patients had 0.8 and type 2 had 2.2 additional CV risk factors. **Conclusion:** ECG-LV H was present in 16% of diabetic patients in Tanzania. Systolic BP was the most important predictor of ECG-LV H. Clustering of CV risks was significantly higher in type 2 than in type 1 diabetics, demonstrating the need for systematic multiple risk-factor assessment in these patients.

222. **Luyangi F, Kaale E, Manyanga V, Mugoyela V. Development and validation of near infrared spectroscopy screening method for quality consistency assessment of virgin sunflower oil.** ***3rd MUHAS Scientific Conference,*** **2015.**

Background: Virgin Sunflower oil is edible oil obtained, without altering the nature of the oil, by mechanical procedures, e.g. expelling or pressing the seeds only. Sunflower oil is recognized internationally for its health benefits and frying performance. The current analytical methods for routine analysis and quality control of vegetable cooking oils are tedious, time consuming, environmental unfriendly and also cannot offer on the spot analysis of adulteration of products in the field during inspections. Near infrared spectroscopy offers some advantages in the analysis of vegetable oils such as rapidity, relative cost-effectiveness, and usually no need for sample preparation. **Objectives**: To develop Near Infrared method for qualitative detection of counterfeiting of virgin sunflower cooking oil **Methods:** Virgin Sunflower oil pressed from sunflower seeds grown Tanzania were used as reference standards that were used to develop spectra library for qualitative identification and validation of the method. Various market samples of virgin sunflower oil were purchased and compared with spectra library. The results of spectral analysis of reference library and market samples were correlated using Mahalanobis distance method. **Results**: Analysis involved 22 market samples collected from Dodoma, Dar es Salaam, Singida and Morogoro regions. When these samples were matched against calibration samples, 4 samples out of 22 (about 18.2%) were not matched by the reference model. These market samples had Mahalanobis distance values of between 4.2-6.7 which is greater than maximum permissible value of 3. Some of adulterants mentioned were Korie oil and pumpkin seeds oil.**Conclusion**: Application of

Principal Component Analysis together with Mahalanobis distance method was able to discriminate non matching Virgin Sunflower oils.

223. **Lwoga E, Chimwaza G, Chande-Mallya R, Chataira B. Evidence based health care practices and information seeking behaviour of health care professionals in Tanzania, *3rd MUHAS Scientific Conference,* 2015.**

Objective: This study sought to assess the information behaviour of health sciences faculty, physicians and other health professionals in EBHC process in selected universities and hospitals in Tanzania. **Methods**: A questionnaire cross-sectional survey was used to collect data from faculty and physicians in three universities and four referral hospitals in Tanzania. **Results**: A total of 561 respondents were selected in the sample institutions, with a rate of return of 71.1% (n=420). A total of 120 nurses also participated in the questionnaire survey. The findings from the survey showed that there is a low level of EBHC amongst the medical workers. The medical workers rated themselves as having no knowledge of Cochrane 37.3% (n=181), TRIP database 56% (n=272) and bandolier 62.3% (n=302). Only 10.6% (n=52) rated themselves as having expert knowledge of using PubMed. The major information needs of health professionals were related to continuing professional development, research work, EBHC, and to acquire latest health information about a disease. This shows that using information obtained to treat patients or to do local research is not high priority. This can be attributed to low understanding of the importance of EBHC. In order to fulfill their information needs, respondents preferred to seek information from internet, print books, colleagues/friends and personal experience. There were differences on the use of print and electronic information sources according to gender, profession, age and level of education. **Conclusion:** The major challenges that health professionals faced were related to lack the skills in searching the Internet and when they do use the Internet, they lack knowledge of the best research based databases popular to the medical field.

224. **Lwoga E, Sife A**. **Research Productivity and Web Visibility of Dental Faculty at Muhimbili University of Health and Allied Sciences: A Scientometric Analysis, *3rd MUHAS Scientific Conference,* 2015.**

Background: Scientometric studies are important in evaluating the research Performance, and promotion and tenure of scholars. However, there are scarce studies on the research impact of dental scholars in Tanzania.**Aim:** A scientometric study was conducted to analyze the research productivity and web visibility of dental faculty at the Muhimbili University of Health and Allied Sciences (MUHAS) in Tanzania from 1983 to 2013. **Methods:** Data were extracted using the Publish or Perish software which uses Google Scholar to retrieve. publications, citation counts and related metrics. For each faculty, the retrieved metrics were the total number of papers, total number of citations, average citations per paper, average papers per author, average citations per year, average citations per author, and four indices - the h-index, g-index, Hc-index, and the HI-norm. **Findings:** The study findings indicate that a total of 364 publications were produced by dental faculty members, giving an average of 12 publications per year. The year 2006 had the most (14.6%) publications followed by 2009 (9.9%) while the years 1984 and 1986 had no publications at all. Majority (81.5%) of publications were multiple-authored with 37.6% of the publications having four or more authors and the degree of collaboration was very high (0.82). Overall, J.R. Masalu was the top ranking scholar followed by E.N. Kikwilu and E.N. Simon. All dental faculty members showed variation in their performance as no single scholar maintained the same rank in all nine metrics. Only eleven journal articles had 50 or more citation counts. Dental faculty in Tanzania had been publishing their research findings in a wide range of international scholarly journals with the Tanzania Dental Journal being the only Tanzanian journal with a substantial number of articles. **Conclusion:** These findings suggest that many factors should be considered in combination when evaluating researchers' productivity and impact

225. Lwoga ET, Komba MM. Antecedents of continued usage intentions of web-based learning management system in Tanzania. *Education and Training*. 2015; 57(7).

Purpose: The purpose of the paper was to examine factors that predict students' continued usage intention of web-based learning management systems (LMS) in Tanzania, with a specific focus at the School of Business of Mzumbe University (MU). Specifically, the study investigated major predictors of actual usage and continued usage intentions of e-learning system, and challenges of using the e-learning system. **Design/methodology/approach:** Data was collected through a questionnaire survey to

300 third year undergraduate students, with a rate of return of 77%. A total of 20 faculty members were also interviewed. The unified theory of acceptance and use of technology (UTAUT) was utilized in the study. **Findings -** The results show that actual usage was determined by self-efficacy, while continued usage intentions of web-based learning system was predicted by performance expectancy, effort expectancy, social influence, self-efficacy and actual usage. Challenges for using web-based LMS were related to ICT infrastructure barrier, LMS user interface was not user friendly, weak ICT policies, management and technical support, limited skills, lack of awareness, resistance to change, and lack of time to prepare e-content and use the e-learning system. **Practical implications**- The study findings are useful to e-learning managers and university management to identify important factors and develop appropriate policies and strategies to encourage long-term usage of e-learning systems for future studies and lifelong learning. **Originality/value** – By using UTAUT in the context of continued usage intentions and the integration of an additional construct ("self-efficacy"), the extended UTAUT model fits very well in the web-based learning systems in Tanzania, in particular where such studies are scant. The findings can be used in other institutions with similar conditions in investigating the continued usage intentions of e-learning systems.

226. Lwoga ET, Questier F. Open access behaviors and perceptions of health sciences faculty and roles of information professionals. *Health Information & Libraries Journal.* 2015.

Objective: This study sought to investigate the faculty's awareness, attitudes and use of open access, and the role of information professionals in supporting open access (OA) scholarly communication in Tanzanian health sciences universities. **Methods:** A cross-sectional survey was conducted. Semi-structured interviews were conducted with 16 librarians, while questionnaires were physically distributed to 415 faculty members in all eight Tanzanian health sciences universities, with a response rate of 71.1%. **Results:** The study found that most faculty members were aware about OA issues. However, the high level of OA awareness among faculty members did not translate into actual dissemination of faculty's research outputs through OA web avenues. A small proportion of faculty's research materials were made available as OA. Faculty was more engaged with OA journal publishing than with self-archiving practices. Senior faculties with proficient

technical skills were more likely to use open access than junior faculty. Major barriers to OA usage were related to ICT infrastructure, awareness, skills, and author-pay model, and copyright and plagiarism concerns. Interviews with librarians revealed that there was a strong support for promoting OA issues on campus; however, this positive support with various open access-related tasks did not translate into actual action. It is thus important for librarians and OA administrators to consider all these factors for effective implementation of OA projects in research and academic institutions. **Conclusion:** This is the first comprehensive and detailed study focusing on the health sciences faculty's and librarians' behaviors and perceptions of open access initiatives in Tanzania and reveals findings that are useful for planning and implementing open access initiatives in other institutions with similar conditions.

227. **Lyimo FR. Barium Study Findings in Patients Presenting With Upper Gastrointestinal Conditions in Dar es Salaam. Master Medicine (Radiology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Upper gastrointestinal diseases are a worldwide health problem. The upper Gl diseases prevalence rate vary globally based on age and sex. Despite the various radiological studies done on upper GIT diseases little is known about the subject in Tanzania. Fluoroscopy is the modality of choice for the radiological assessment of the upper GIT and establishing radiological patterns compared to plain radiography. **Objective:** To determine barium study findings in patients presenting with upper gastrointestinal tract disease conditions in Dar es Salaam, from July to December 2014 **Methodology:** This was hospital based cross-sectional descriptive study that involved 324 patients at Muhimbili and TM] Hospitals with upper Gi symptoms and signs that were referred to Radiology department. In all participants upper Gl fluoroscopy was clone. Statistical analysis was performed using computer program Statistical Package for Social Sciences (SPSS) version; 20. Fisher's exact test was used to compare between ages. Gender and Fluoroscopy findings. A p-value of <0.05 was considered to indicate statistically significant difference. **Results:** The age ranged from 6 years to 92 years with overall mean age of 39.23 years. Overall male to female ratio was 1:1.17. Abdominal pain 291 (89.8%) and discomfort 140 (43.2%) were the most presented complains while the least presented was involuntary weight loss 2 (0.6%). Heartburn incidence was

observed to increase with advancing age while involuntary weight loss was exclusive to older age group (above 51years). About 137 (42.3%) had positive barium study findings. Duodenal cap deformity 63(19.4%) and thickened gastric folds 58 (17.9%) were the commonest radiological findings. Gastritis 58 (17.9%) was the commonest radiological diagnosis, followed by duodenitis 56 (17.3%), GERD 29 (9.0%), duodenal ulcer 12 (3.7%), esophageal carcinoma 5 (1.5%), achalasia 3 (0.9), hiatus hernia 3 (0.9%), gastric ulcer 2 (0.6%), gastric carcinoma 2 (0.6), tracheoesophageal fistula 1 (0.3) and gastric esophageal sphincter dysfunction l (0.3). **Conclusion:** Overall, gastritis was the commonest radiological diagnosis, while TOF and gastric esophageal sphincter dysfunction being the least. More females presented with upper Gl complaints than men. Duodenal cap deformity and thickened gastric folds were the commonest radiological findings among patients presenting with upper GI complaints.**Recommendations:**1. There is needed to do more similar studies elsewhere in the country as this study was limited to Dar es Salaam; data for the country in general is lacking. 2. Barium study to be standard of care for all patients with upper Gl symptoms prior to management plans. 3. Further studies to be conducted to show risk factors associated with upper GIT symptoms! Diseases in order to provide a good life style. `

228. **Maboja C, Yahya-Malima K. Persistent mental illness stigma in Ilala municipal Dar es salaam, Tanzania, *3rd MUHAS Scientific Conference*, 2015.**

Background: Efforts to integrate mental health care in all primary health care facilities in Tanzania began more than a decade ago. With stigma towards mentally ill persons still among the challenges that needs to overcome to promote allopathic medical care. Current understanding of stigma towards psychiatric patients may offer an opportunity for priori community mental health prevention interventions to curb the increasing prevalence mental illness as recently determined by the World Health Organisation.**Objective:** To explore stigma towards psychiatric patients within the community within households in Ilala Municipality in Dar es Salaam. **Methods:** Data triangulation methods were purposively used to sample consenting psychiatric patients (aged 30-50 years) on remission and caretakers. Data on stigma towards psychiatric patients was collected using in-depth interviews and focus group discussions. Content analysis was used to explore the status of stigma and comparison of feedback of participants was used to determine

areas of agreement and divergence. **Results:** The findings show an existence of stigma by the following themes: stigma and interpersonal interactions, stigma and social roles, stigma and structural discrimination, lastly stigma and public image towards the mentally ill. Stigma has many implications to the patients and their relatives, community perceptions on causes of mental illness seems to contribute to the stigmatizing attitude of the mentally ill thus reinforcing a viscous cycle for those affected and their caretakers in Ilala municipality.**Conclusion:** We conclude that stigma related to mental illness still predominates and is not limited to patients alone but the community is also part of the stigmatizing world. The findings underscore the need for strengthened community wide advocacy campaigns to reduce stigma and improve uptake of allopathic care and promote mental health as an early measures against the rising incidence of mental illness in the country.

229. **Machibya F, Baob X, Zhaoc L, Hud M. Treatment time, outcome, and anchorage loss comparisons of self-ligating and conventional brackets. *3rd MUHAS Scientific Conference,* 2015.**

Background: Self-ligating brackets (SLBs) are reported to have several advantages over conventional ligating brackets (CBs). However; some of the supposed advantages are not yet clearly demonstrated by clinical studies.**Aim:** To compare the treatment time, outcome, and anchorage loss among orthodontic patients treated by Self-ligating brackets (SLBs) SmartClip and conventional brackets (CBs) Victory series brackets. **Methods**: A retrospective cohort study comparing 34 patients SLB group treated by SmartClip (3M Unitek, Monrovia,Calif, USA) brackets to 35 patients CB group treated by conventional pre-adjusted brackets Victory series (3M Unitek, Monrovia, Calif, USA) ligated by stainless steel wire ligatures. Pre-treatmen (T1) and post-treatment (T2) lateral cephalograms were traced and analyzed by Pancherz sagittal-occlusion analysis to obtain skeletal and dental changes in the maxilla and the mandible. The dental cast models were assessed by the PAR Index for the treatment outcomes. **Result**s: The mean treatment time for SLBs (19.19 months) was not statistically significant different from 21.25 months of CBs; but the treatment time and pre-treatment PAR scores were strongly correlated. There was no difference in anchorage loss between SLB and CB groups. There were significant dental and skeletal changes among adolescent orthodontic patients regardless

of the bracket used. The lingual inclination of mandibular incisors in CBs was 3.62° more than SLBs group ($P < 0.01$). **Conclusion**: The treatment time and anchorage loss are not influenced by the type of bracket used. There are significant dental and skeletal changes among adolescent orthodontic patients regardless of the bracket used. There is significant greater lingual inclination of mandibular incisors in CBs group than SLBs group.

230. **Macieira RM, Simon T, Pimentel CR. "Isolation and speciation of tidepool fishes as a consequence of Quaternary sea-level fluctuations."*Environmental Biology of Fishes.* 2015; 98(1): 385-393.**

Dispersal is fundamental to the colonization of oceanic islands that were never connected to larger landmasses. For species with limited dispersal capabilities, colonization of remote islands can be followed by isolation and speciation. The tidepool fish community of Trindade Island, 1,160 km off the Brazilian coast at the eastern end of the Vitória-Trindade Chain, is composed of 18 species from 11 families. Four endemics accounted for 48 % of the total number and 10 % of the total fish weight in tide pools. The fact that the five species confirmed to be endemic to Trindade are restricted to intertidal and shallow waters indicate that in the present interglacial period the seamounts of the Vitória-Trindade Chain do not allow dispersal following a stepping-stones model. Thus, seamounts must have been used as stepping-stones when emerged during lower sea-level periods of the Pleistocene, but this connection was definitively interrupted when they became submerged at the end of the last glaciation. This highlights the importance of considering sea level fluctuations as a structuring factor of intertidal and shallow water communities at oceanic localities.

231. **Mafuru M, Kamuhabwa AA. Nevirapine-induced hepatotoxicity in HIV patients attending care and treatment clinics in Iringa regional hospital. *3rd MUHAS Scientific Conference,* 2015.**

Background: Nevirapine is one of the most widely used ARVs in the first-line triple ART, particularly in low and middle-income countries. One of the primary concerns with the use of nevirapine containing regimen is nevirapine-associated hepatotoxicity. Nevirapine is reported to be associated with early hypersensitivity reactions which can cause fulminant hepatitis leading to hepatic failure and death, particularly in the first 18

weeks of therapy**. Aim:** This study aimed to assess the prevalence of hepatotoxicity in HIV-infected patients taking nevirapine-containing ARVs in comparison with patients using efavirenz-based ARVs. **Materials and methods:** The study involved screening of 373 HIV-infected patients (224 taking nevirapine-based regimen and 149 taking efavirenz-based regimens). Recruited patients were those who are on ARVs for at least two weeks attending CTC at Iringa Regional Hospital. Blood samples from patient swere collectedand assayed for ALT& AST levels (as markers of liver toxicity) by using HumaLizer 3500. Liver toxicity was defined as an increase in transaminase levels of 1.25-fold above the upper limits ofnormal range. **Results:** Mild to moderate hepatotoxicity was observed in 27 patients (12.1%) among nevirapine-based regimen users compared to 6 patients (4%) using efavirenz-based regimen (P = 0.004). There was no indication of severe hepatotoxicity (Grade 3 to 4) in both groups of patients. Hepatotoxicity was common (13.2%) in patients who are on nevirapine-based regimen for more than 12 months than those who were using the same regimen (4.3%) for less than 12 months. No association was found between age, gender, body mass index, CD_4 cell count and duration of use of ARVs and hepatotoxicity.**Conclusion:** Liver damage is three times more common in patients receiving nevirapine than in those takingefavirenzi. Based on the findings of this study, hapatotoxicity due to nevirapine-based regimen is mild to moderate and may occur at any time of therapy. Routine monitoring of liver aminotransferances should be conducted in patients taking nevirapine containing ARV regimen.

232. **Magadula J, Masimba P, Tarimo R, Msengwa Z, Mbwambo Z, Heydenreich M, Breard D, Richomme P. Biologically Important Mammea-type Coumarin Compounds from Mammea usambarensis Verdc. *3rd MUHAS Scientific Conference, 2015.***

Background*:* The genus *Mammea* is known to consist of about 70 species with the mainland Africa harboring only two species, namely *M. africana* and *M. usambarensis* (Janick and Paul, 2008). Many of the species of this genus *Mammea* are used in traditional medicine for the treatment of various diseases such fever, internal heat, stomach pains, scabies and microbial infections (Chapuis *et al.,* 1988). Furthermore, this genus is reported to produce bioactive mammea-type coumarins (Crombie *et al*, 1987).

Aim*:* This work aims to investigate *M. usambarensis* for its potential use as an antioxidant and antimicrobial plant. It is a tree endemic to Shagayu forest reserve in Lushoto district, Tanga region, where it is mainly valued for its edible fruits. **Methods***:* Field collection and both phytochemical and pharmacological laboratory works will be undertaken on the crude extracts and pure compounds. **Results***:* Ethnomedically, there is no report on the use this plant in traditional medicine. Our investigations of the stem bark and fruits resulted into the isolation of five (5) mammea-type coumarins that were fully identified by using both physical and advanced spectroscopic techniques. In addition, both crude extracts and pure compounds were screened for their antioxidant and antimicrobial activities. The antioxidant activity of the crude extract was observed to be twice as higher as that of the known standard compound.**Conclusion***:* Hence, the isolation, identification and biological activity of the crude extracts and the isolated secondary metabolites are reported herein.

233. **Maganda B, Minzi O, Kamuhabwa AA, Ngasala B, Sasi P**. **Treatment outcomes for uncomplicated malaria in HIV infected adults patients on anti-retroviral therapy treated with artemether-lumefantrine.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Malaria and HIV are common infections in sub-Saharan Africa. HIV infected patients receiving anti-retroviral therapy (ART) are more likely to be on anti-malarial drugs. Limited data are available on the effectiveness of artemether – lumefantrine combination (AL) when co-administered with anti-retroviral drugs as both are metabolized by CYP 450 system. Thus, this creates a potentiality of drug-drug interactions. **Aim:** This study aimed to compare anti-malarial treatment responses between HIV-1 infected patients on either nevirapine (NVP-arm) or efavirenz (EFV-arm) based treatment and those not yet on ART with uncomplicated malaria, treated with AL. **Method:** Prospective, non-randomized, open label study with three arms: EFV- arm n= 66, NVP-arm n= 128 and control arm n=75 conducted in Bagamoyo district. All patients were treated with AL and followed-up for 28 days. Primary outcome measure was the adequate clinical and parasitological response (ACPR) after treatment with AL. **Results**: Day 28 un-corrected ACPR was 98%, 82.5% and 95 % for the NVP-arm, EFV-arm and control arm, respectively. No early treatment or late parasitological failure was reported. Late clinical failure during follow-up was observed in all the 3 arms. The cumulative risk

of failure was >19-fold higher in the EFV-arm than in the control arm (Hazard ratio [HR], 19.11 [95% confidence interval {CI}, 10.5–34.5]; P< 0.01). The cumulative risk of failure in the NVP-arm was not significantly higher than in the control arm ([HR], 2.44 [95% {CI}, 0.79–7.6]; P= 0.53). Median lumefantrine concentrations on day 7 were 1,125ng/mL (258-5403), 300.4 ng/mL (82.2-835) and 970 ng/ml (108-2592) for the NVP-arm, EFV-arm and control arm, respectively. **Conclusion**: After 28 days of follow-up, AL was safe and effective in the treatment of uncomplicated malaria in the NVP-arm. Results from this study also provide an indication of the possible clinical effect of EFV on the performance of AL and its likelihood to affect malaria treatment outcome.

234. **Maganda B, Minzi O, Ngaimisi E, Kamuhabwa AA, Aklillu E. CYP2B6* 6 genotype and high efavirenz plasma concentration but not nevirapine are associated with low lumefantrine plasma exposure and poor treatment response in HIV-malaria-coinfected patients. *The pharmacogenomics journal*. 2015.**

Background and Objective: Dihydroartemisinin–piperaquine (DhP) is a very cost effective anti-malarial drug. The aim of this study was to predict the budget impact of using DhP as a first- or second-line drug to treat uncomplicated malaria in children in Tanzania. **Methods:** A dynamic Markov decision model was developed based on clinical and epidemiological data to estimate annual cases of malaria in children aged less than 5 years. The model was used to predict the budget impact of introducing DhP as the first- or second-line anti-malarial drug, from the perspective of the National Malaria Control Program in 2014; thus, only the cost of drugs and diagnostics were considered. Probabilistic sensitivity analysis was performed to explore overall uncertainties in input parameters. **Results:** The model predicts that the policy that uses artemether–lumefantrine (AL) and DhP as the first- and second-line drugs (AL + DhP), respectively, will save about $US64,423 per year, while achieving a 3 % reduction in the number of malaria cases, compared with that of AL + quinine. However, the policy that uses DhP as the first-line drug (DhP + AL) will consume an additional $US780, 180 per year, while achieving a further 5 % reduction in the number of malaria cases, compared with that of AL + DhP. **Conclusion:** The use of DhP as the second-line drug to treat uncomplicated malaria in children in Tanzania is slightly cost saving. However, the policy that uses DhP as the first-line drug is somewhat more expensive but with more health benefits

235. **Maganda B, Ngaimisi E, Aklillu E. "The influence of nevirapine and efavirenz-based anti-retroviral therapy on the pharmacokinetics of lumefantrine and anti-malarial dose recommendation in HIV-malaria co-treatment."*Malaria journal1.* 2015; 4(1): 1-11.**

Background: HIV-malaria co-infected patients in most parts of sub-Saharan Africa are treated with both Artemether-lumefantrine (AL) and efavirenz (EFV) or nevirapine (NVP)-based antiretroviral therapy (ART). EFV, NVP, Artemether and lumefantrine are substrates, inhibitors or inducers of CYP3A4 and CYP2B6, creating a potential for Drug-drug interactions. The effect of EFV and/or NVP on lumefantrine pharmacokinetic profile among HIV-malaria Co-infected patients on ART and treated with AL was investigated. Optimal lumefantrine dosage regimen for patients On EFV-based ART was determined by population pharmacokinetics and simulation. **Methods:** This was a non-randomized, open label, parallel, prospective cohort study in which 128, 66 and 75 HIV-malaria Co-infected patients on NVP-based ART (NVP-arm), EFV-based ART (EFV-arm) and ART naïve (control-am) were enrolled, Respectively. Patients were treated with AL and contributed sparse venous plasma samples. Pharmacokinetic analysis of Lumefantrine was done using non-linear mixed effect modeling. **Results:** Of the evaluated models, a two-compartment pharmacokinetic model with first order absorption and lag-time Described well lumefantrine plasma concentrations time profile. Patients in the EFV-arm but not in the NVP-arm had significantly lower lumefantrine bioavailability compared to that in the control-arm. Equally, 32% of patients in the EFV-arm had day-7 lumefantrine plasma concentrations below 280 ng/ml compared to only 4% in the control-arm and 3% in the NVP-arm. Upon post hoc simulation of lumefantrine exposure, patients in the EFV-arm had lower exposure (median (IQR)) Compared to that in the control-arm; AUC0-inf; was 303,130 (211,080–431,962) versus 784,830 (547,405–1,116,250); Day-7 lumefantrine plasma concentrations were: 335.5 (215.8-519.5) versus 858.7 (562.3-1,333.8), respectively. The Predictive model through simulation of lumefantrine exposure at different dosage regimen scenarios for patients on EFV-based ART, suggest that AL taken twice daily for five days using the current dose could improve Lumefantrine exposure and consequently malaria treatment outcomes. **Conclusions**: Co-treatment of AL with EFV-based ART but not NVP-based ART

significantly reduces lumefantrine Bioavailability and consequently total exposure. To ensure adequate lumefantrine exposure and malaria treatment Success in HIV-malaria co-infected patients on EFV-based ART, an extension of the duration of AL treatment to five days Using the current dose is proposed.

236. **Maganga F. Knowledge and attitude on safety pesticide use among tobacco farmers in urambo district, Tabora. Master of Public Health,** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es salaam.***

Background: Unsafe pesticide use continues to be a public health problem worldwide, in sub- Saharan Africa and Tanzania. Tobacco farming involve a great use of pesticides, exposing farmers to chemical hazards as most of them especially in developing countries do not follow safety measures when spraying pesticides on the crop. The use of pesticide in Urambo district is unavoidable because large quantity of tobacco in Tanzania is cultivated in this area. Knowledge and attitude on safety pesticide use has not been assessed in Urambo. Aim of the study: To assess knowledge and attitude on safety pesticide use among tobacco farmers in Urambo district, Tabora. **Methodology:** Cross Sectional study was conducted in Urambo district, Tabora region from end of June to the end of July, 2015. A questionnaire with closed ended questions was used to collect information after informed consent from 576 tobacco farmers from AMCOS of Imalamakoye, Nyota and Nsanjo. Multistage sampling was employed to get the participants. Data was entered directly and analyzed using Statistical Package for Social Science (SPSS) program version 15.0. **Results:** The mean age of farmers was 36.5±10.8 years. Majority were males, completed primary education. Knowledge and attitude were sufficient however; unsafe practices were identified, for example improper storage of pesticides at home, mixing of pesticides by using piece of wood, disposal of containers by burning and burying them and inadequate use of PPE. Safety practice was significantly associated with age (p-value 0.07), experience (p-value 0.00), marital status (p-value 0.010) and attitude (p-value 0.004) **Conclusion:** Tobacco farmers in Urambo had high knowledge on safe use of pesticides, positive attitude, however there was inadequate practices regarding protection when spraying pesticides on tobacco which is a threat to public health. Special educational programs, legislation and promotion of safer use of pesticides and implementation of protective measures are highly recommended.

237. **Magatti OP. Prevalence of body tattooing, body piercing and associated factors among students of higher learning institutions in Dar es salaam, Tanzania. Master of Public Health.** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es salaam.***

Background: Piercing and tattooing are becoming more and more increasingly popular among youths in Africa including Tanzania, However, little attention has been given to understand factors, motives toward body art practices and knowledge on health risks associated with un-sanitary piercing and tattooing. **Objectives:** The major purpose of this study was to determine the motives and factors associated with body modification (tattoo and body piercing) among undergraduates in higher learning institutions in Dar es Salaam. **Materials and Methods:** The study was a cross sectional descriptive study conducted in Dar es Salaam region in public and private universities and colleges. Self completed anonymous questionnaires were used to collect data from the respective students whereby the data were analyzed using Statistical Package for Social Sciences (SPSS) version 15 computer software. Purposive sampling was used to select students in 3rd, 4th and 5th year from the respective universities and colleges. Bivariate analysis was applied to assess the association between dependent and independent categorical variables. Logistic regression was applied and odds ratio were used to measure factors associated with body piercing and tattooing. **Results:** Youth was defined as every person between the ages of 15 and 35 years. The prevalence of tattooing and piercing was (3% and 21 %) respectively among undergraduate. Factors associated with piercing and tattooing were beauty (OR =3.1, CI 2.1-5.1), work (OR= 0.6, CI 0.4-0.9) and youth (OR = 4.7, CI 1.5-14.4). A motive of tattooing and piercing was to improve physical appearance. **Conclusion:** Although limited to students, this study involved a large sample of youth and young adults studying in universities and colleges in Dar es Salaam. Findings indicate that body art practices in particular body piercing is widespread than tattooing among university and college students. **Recommendation:** In schools teachers should be empowered to construct and discuss health topics related to body modification to improve awareness of risks and knowledge about how to effectively deal with them.

238. **Mageda K, Mmbaga EJ. Prevalence and predictors of institutional delivery among pregnant mothers in Biharamulo district, Tanzania: a cross-sectional study. *Pan African Medical Journal.* 2015; 21(1).**

Introduction: Giving birth in a health facility is associated with lower maternal mortality than giving birth at home. A recent Tanzania Demographic Health survey showed that, although more than 90% of pregnant women attended at least one antenatal clinic visit, only 50% of pregnant women delivered at a health facility. The aim of this study was to document the magnitude and predictors of institutional delivery in order to assist in setting priorities and developing appropriate intervention measures to reduce maternal mortality. **Methods:** We conducted a cross-sectional study of women in Biharamulo district who delivered during the year preceding the survey. Multistage sampling was used to obtain 598 participants. A structured questionnaire was used to collect data. Bivariate and multivariate analysis was performed. **Results:** 56% of women delivered in a health facility. Factors most strongly associated with institutional delivery were past care experience (aOR=265.1, 95%CI 28.6- 2466.7), advice from health care provider to deliver at a health care facility (aOR=29.2, 95%CI 2.9-291.5), decision making on health care seeking on a pregnancy (aOR=7.1, 95%CI 2.7-19.0), maternal education (aOR=6.7, 95%CI 2.3-20.0), first antenatal care visit at **Conclusion:** The prevalence of institutional delivery in Biharamulo District remains low. To raise the prevalence, the district should implement measures to make institutional delivery the preferred option for pregnant women. These measures should include encouraging women to make early antenatal care visits and make plans with their spouses for institutional delivery, reducing costs, improving the experience for women undergoing delivering in a healthcare facility, and consider locating new facilities closer to the women who need them.

239. **Magogo MM. The prevalence of posttraumatic stress disorder and associated factors among Tanzanian peacekeeping soldiers in Darfur mission**. **Master of (Psychiatry) *Dissertation 2015. Muhimbili University of Healtha nd Allied Sciences*.**

Background: Tanzania being part of United Nations has been involved in peacekeeping missions in different areas/countries in Africa for the past 30 years and currently has peacekeepers in Lebanon, Democratic Republic of Congo and Darfur region in Sudan.

Post traumatic stress disorder is one of the leading mental illnesses among soldiers coming from peacekeeping missions, others include depression, anxiety disorder, somatization and alcohol abuse. During deployment peacekeeping soldiers may be exposed to life-threatening situations like shootings, being taken hostage, and hostile reactions of the conflicting parties. In addition, peacekeepers are increasingly providing humanitarian aid and may witness human distress, such as starvation, sick or injured people. Meanwhile the principle of non-use of force except for self-defense is central to the concept of UN peacekeeping. Personnel involved in peacekeeping operations must often be able to restrain their reactions and to control both fight and flight impulses, even while being exposed to life-threatening situations. In addition, it is important that they maintain their neutral role. Thus, peacekeeping operations may make great demands upon peacekeepers and may saddle them with new stressors. Darfur region is found in the western part of Sudan and has been in conflict since 2003. Even after signing of the peace agreement in 2006 between the rebels and the Government of Sudan, the killing, raping, robbery and beating of people including UN peacekeeper has increased to nine fold as compared to first incidences. This makes Darfur to be one of the deadliest parts in the World, this fact alone may be the major cause of stressor to soldiers selected to serve in Darfur. **Objective:** To determine the prevalence of Post Traumatic Stress Disorders and factors associated among Tanzanian peacekeeping soldiers in Darfur mission. Methodology: The method used to collect data was convenient sampling whereby the earliest contingent coming back from the mission was involved. All soldiers who came back in this contingent participated during interviews and those who accepted were enrolled in the study. Results: 412 Tanzanian soldiers attended peacekeeping mission in Darfur from February 2013 to February2014 were enrolled in this study. The mean age (SD) of the participants was 35.32±7.63 and the minimum age was 24 and maximum age was 54 years. Majority of the participants (96.3%) were males and 75% had secondary school educational level. Among participants 27.2% were found to have PTSD by using PTSD Checklist Military version which is an instrument with 17 items, is self administered and correspond with DSM IV criteria for diagnosing PTSD. In assessing factors associated with PTSD among Tanzanian soldiers who participated in the peacekeeping event in Darfur, 44.4% of soldiers with age above 50 years were

experiencing PTSD. There was a statistically significant association between age of the participant and PTSD (P=0.044). 29.2% of the participants, who were married, had PTSD. There was no statistically significant association between marital status of the respondent and PTSD (p=0.096). 43% of the participants who had higher education level had PTSD. Those with primary education level were the least reporting PTSD. There was no statistically significant association between educational level and PTSD (p=0.229). **Conclusion:** This being the first study conducted among Tanzanian Soldiers returning from UN peacekeeping mission with a prevalence of Post Traumatic Stress Disorder(PTSD) of 27.2%, shows that Tanzanian soldiers like any other soldiers in the World peacekeeping mission are vulnerable to the stress and trauma associated war situations peacekeeping missions. The study may help to highlight the importance of screening to soldiers returning from mission which would help with early detection of soldiers who are mentally unwell and be able to get professional management of their problems. More studies are required to find out how these soldiers are coping with symptoms and how much symptoms affect them in terms of roles and duties as a soldier, as a family member, social responsibilities and as community member.

240. **Mahaska WN. Assessment of Medicine Prices and Procurement Practices in Public Hospitals in Lindi Region. Master of Science (Pharmaceutical Management)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Medicine price is one of the key factors which determine availability and access to medicines. Unfair, corruption and non transparent procurement practices lead to excessive medicine prices which affect availability and access to medicines in public hospitals. **Aim of the study:** The aim of this study was to assess procurement practices and medicine prices in public hospitals in Lindi region. **Methodology:** This was a descriptive cross sectional study that employed both qualitative and quantitative methods. Purposive sampling technique was employed to select public hospitals and key informants from the hospitals and council procuring entities in Lindi region. The quantitative method was done through review of secondary retrospective data whereas the qualitative part relied on information extracted from self administered semi structured questionnaires. Variation in medicine prices was calculated using maximum and minimum medicine prices whereas the median price ratio was used to compare supplier's

prices. **Results:** The average private supplier's percentage medicine price increase (Maximum-Minimum) was 233 (IQR, 94.3-595.4). The lowest and highest medicines' percentage price increase was 3.3 and 3566.7 respectively. On average councils pre-qualified supplier's medicine prices were twice as expensive as non qualified suppliers. Pre-qualified supplier's medicine prices were three times more expensive than MSD prices where as non qualified supplier's prices were 1.3 times more expensive than MSD prices. The average public hospital percentage patient medicine price increase for vital and essential medicines were 400(IQR, 131-400) and 300(IQR, 199-400) respectively. Major reason found for change of patient medicine price in public hospital was increase in medicine prices at MSD and Private Wholesalers of medicines. Evaluation of procuring entities on private suppliers' selection criteria showed that 60% of the selected suppliers had performed poorly; the results also revealed that the health basket fund was the most used source of fund for procuring medicines from private suppliers. **Conclusion:** Findings from this study show that there are no uniform criteria for pre qualifying private suppliers of medicines in Lindi region. Medicine prices from council's pre qualified suppliers were more expensive than non qualified suppliers. This study also shows that overall private supplier's prices were twice as expensive as MSD prices. The study has also shown that there is a big difference in patient medicine prices among public hospitals in Lindi region. Furthermore this study has revealed that when procuring medicines, procuring entities don't abide fully to the public procurement act 2011 and its regulation of 2013.

241. **Mahende C, Billy N, John L, (et al.) "Bloodstream bacterial infection among outpatient children with acute febrile illness in north-eastern Tanzania."** ***BMC research notes.*** **2015. 8(1): 289.**

Background: Fever is a common clinical symptom in children attending hospital outpatient clinics in rural Tanzania, Yet there is still a paucity of data on the burden of bloodstream bacterial infection among these patients. **Methods:** The present study was conducted at Korogwe District Hospital in north-eastern Tanzania. Patients' agedbetween 2 and 59 months with a history of fever or measured axillary temperature ≥37.5°C attending the outpatientclinic were screened for enrolment into the study. Blood culturing was performed using the BACTEC 9050® system.A biochemical analytical profile index

and serological tests were used for identification and confirmation of bacterialisolates. In-vitro antimicrobial susceptibility testing was performed using the Kirby-Bauer disc diffusion method. Theidentification of *Plasmodium falciparum* malaria was performed by microscopy with Giemsa stained blood films. **Results:** A total of 808 blood cultures were collected between January and October 2013. Bacterial growth was Observed in 62/808 (7.7%) of the cultured samples. Pathogenic bacteria were identified in 26/808 (3.2%) cultures andthe remaining 36/62 (58.1%) were classified as contaminants. *Salmonella typhi*was the predominant bacterial isolatedetected in 17/26 (65.4%) patients of which 16/17 (94.1%) were from patients above 12 months of age. *Streptococcuspneumoniae*was the second leading bacterial isolate detected in 4/26 (15.4%) patients. A high proportion of *Salmonelatyphi*11/17 (64.7%) was isolated during the rainy season. *S. typhi*isolates were susceptible to ciprofloxacin (n = 17/17,100%) and ceftriaxone (n = 13/17, 76.5%) but resistant to chloramphenicol (n = 15/17, 88.2%). *P. falciparum* malariawas identified in 69/808 (8.5%) patients, none of whom had bacterial infection. **Conclusion:** Bloodstream bacterial infection was not found to be a common cause of fever in outpatient children; and *S. typhi*was the predominant isolate. This study highlights the need for rational use of antimicrobial prescriptionin febrile paediatric outpatients presenting at healthcare facilities in rural Tanzania.

242. Mahenge B, Stockl H. (et al.) "The prevalence of mental health morbidity and its associated factors among women attending a prenatal clinic in Tanzania." ***International Journal of Gynecology & Obstetrics. 2015;*** **130(3): 261-265.**

Objective: To establish the prevalence of symptoms of anxiety, depression, and post-traumatic stress disorder (PTSD) among women attending prenatal care in Tanzania, and identify associated factors. **Methods:** A cross-sectional study was conducted of one in five physically well women attending a prenatal-care clinic in Muhimbili National Hospital, Dar es Salaam, between December 2011 and April 2012. Trained research assistants carried out face-to-face interviews using a structured questionnaire. The Hopkins Symptoms Checklist and the PTSD Diagnostic Scale were used to establish levels of depression and anxiety symptoms. **Results:** Among the 1180 women interviewed, 905 (76.7%) had symptoms of anxiety, 923 (78.2%) had symptoms of depression, and 58 (4.9%) had moderate/severe PTSD symptoms. After adjustment for

women's sociodemographic characteristics, age of the woman and their partner, educational level of the woman and their partner, relationship duration, employment, and marital status were associated with symptoms of at least one of the three mental disorders ($P < 0.05$ for all). **Conclusions:** Many pregnant women had symptoms of mental health disorders. Screening of mental health disorders during prenatal care and training of healthcare providers are needed.

243. **Mahiti G, Kiwara A, Mbekenga C, Hurtig A, Goicolea I. "We have been working overnight without sleeping". Traditional Birth Attendants' practices and perceptions of postpartum care services in rural Tanzania. *3rd MUHAS Scientific Conference,* 2015.**

Background: The postpartum period is an important period for improving maternal and child health. In many low-income countries, formal postpartum coverage is much lower than that of skilled delivery and antenatal care. Despite many studies exploring Traditional Birth Attendants (TBAs) involvement during pregnancy and delivery, little is known on TBAs roles during postpartum. **Aim:** The aim of this study was to explore TBAs practices and perceptions on skilled postpartum care in rural, Tanzania. **Methods:** Qualitative in-depth interviews data were collected from eight informal and three formal TBAs. Additionally, five multiparous women who were clients of informal TBAs were interviewed to triangulate information obtained from TBAs. Data were transcribed verbatim and open code program used for the coding process. Qualitative content analysis was used to analyse data. **Results:** Our study found that, TBAs conduct close postpartum follow-ups, performing some rituals such as caring closely, cooking food and massaging women that were appreciated by women. They treat complications locally when they arise. In addition they perceive that, utilization of hospital-based postpartum service among women is only important for the baby and when complications which they can't handle occur. TBAs report lacking formal postpartum care training and their main source of knowledge was their parents and in-laws. They are poorly linked to the health system. **Conclusions:** TBAs practice rituals that could have been both positive and negative health implications, have negative perceptions to women use of formal postpartum care and have poor link to health system. The Ministry of Health and Social Welfare and other stakeholders should increase awareness on the importance of

postpartum care. Integration of some beneficial rituals implemented by TBAs need to be considered. Improved collaboration between TBAs and formal health system would ensure continuity of care.

244. **Mahiti G, Kiwara AD, Mbekenga CK. ""We have been working overnight without sleeping": traditional birth attendants' practices and perceptions of post-partum care services in rural Tanzania."** ***BMC pregnancy and childbirth.*** **2015; 15(1): 8.**

Background: In many low-income countries, formal post-partum care utilization is much lower than that of skilled Delivery and antenatal care. While Traditional Birth Attendants (TBAs) might play a role in post-partum care, researchexploring their attitudes and practices during this period is scarce. Therefore, the aim of this study was to exploreTBAs' practices and perceptions in post-partum care in rural Tanzania. **Methods:** Qualitative in-depth interview data were collected from eight untrained and three trained TBAs. Additionally, five multiparous women who were clients of untrained TBAs were also interviewed. Interviews were conducted inFebruary 2013. Data were digitally recorded and transcribed verbatim. Qualitative content analysis was used toanalyze data. **Results:** Our study found that TBAs take care of women during post-partum with rituals appreciated by women. Theyreport lacking formal post-partum care training, which makes them ill-equipped to detect and handle post-partumcomplications. Despite their lack of preparation, they try to provide care for some post-partum complications whichcould put the health of the woman at risk. TBAs perceive that utilization of hospital-based post-partum services amongwomen was only important for the baby and for managing complications which they cannot handle. They are poorlylinked with the health system. **Conclusions:** This study found that the TBAs conducted close follow-ups and some of their practices were appreciated by women. However, the fact that they were trying to manage certain post-partum complications can put women atrisk. These findings point out the need to enhance the communication between TBAs and the formal health systemand to increase the quality of the TBA services, especially in terms of prompt referral, through provision of training, mentoring, monitoring and supervision of the TBA services.

245. **Mahiti G, Mkoka DA, Kiwara AD. "Women's perceptions of antenatal, delivery, and postpartum services in rural Tanzania."** ***Global health action 8.*** **2015.**

Background: Maternal health care provision remains a major challenge in developing countries. There is agreement that the provision of quality clinical services is essential if high rates of maternal death are to be reduced. However, despite efforts to improve access to these services, a high number of women in Tanzania do not access them. The aim of this study is to explore women's views about the maternal health services (pregnancy, delivery, and postpartum period) that they received at health facilities in order to identify gaps in service provision that may lead to low-quality maternal care and increased risks associated with maternal morbidity and mortality in rural Tanzania. Design We gathered qualitative data from 15 focus group discussions with women attending a health facility after child birth and transcribed it verbatim. Qualitative content analysis was used for analysis. **Results:** 'Three categories emerged that reflected women's perceptions of maternal health care services: "mothers perceive that maternal health services are beneficial," "barriers to accessing maternal health services" such as availability and use of traditional birth attendants (TBAs) and the long distances between some villages, and "ambivalence regarding the quality of maternal health services" reflecting that women had both positive and negative perceptions in relation to quality of health care services offered'. **Conclusions:** Mothers perceived that maternal health care services are beneficial during pregnancy and delivery, but their awareness of postpartum complications and the role of medical services during that stage were poor. The study revealed an ambivalence regarding the perceived quality of health care services offered, partly due to shortages of material resources. Barriers to accessing maternal health care services, such as the cost of transport and the use of TBAs, were also shown. These findings call for improvement on the services provided. Improvements should address accessibility of services, professionals' attitudes and stronger promotion of the importance of postpartum check-ups, both among health care professionals and women.

246. **Maingu RZ. Availability, Storage and Use of Anti-Rabies Vaccines in Public Health Facilities in Lindi and Tanga Region in Tanzania. Master of Science (Pharmaceutical Management)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Rabies is one of the 17 neglected tropical diseases recognized by WHOM. Rabies is enzootic viral disease; main vector of disease is domestic dog. Rabies is 100% fatal if left untreated causing neurologic problems is a preventable disease. Prevention can be done by vaccinating canine (dogs), administering rabies vaccine, rabies immunoglobulin's (RIG's), community participation and public awareness. Procurement and stocking of anti-rabies vaccine in public health facilities is a problem due to the fact that rabies is given low priority due to under-reporting of the disease magnitude [20]. Keeping lots of supplies when demand is low threatens expiry of stock its subsequent unavoidable negative financial impacts. **Objectives:** The objectives of the study were to assess availability, source of supply, storage and use of anti-rabies vaccines in public health facilities in Lindi and Tanga region. **Methodology:** This was a descriptive cross sectional study which employed quantitative method of data collection. Structured questionnaires were used to collect quantitative data from health care workers that were responsible for ordering and storing of anti-rabies vaccine. This study also assesses knowledge of health care workers regarding the use of anti-rabies vaccines in the health facilities. Observation checklist was used to capture information regarding storage of anti-rabies vaccines in the health facilities. Retrospective review of records was done to calculate stock-out duration of anti-rabies vaccines. Physical count was done to determine the number of anti-rabies vaccine vials on the day of visit. **Results:** The study found that mean the stock out duration of anti rabies vaccines was 103 days and 200 days in Lindi and Tanga region respectively. Seven facilities in Tanga had stock of anti-rabies vaccine versus one facility in Lindi on the day of visit. Average score of storage condition of anti-rabies vaccines in facilities in Tanga and Lindi region were 67.6% and 66.8% respectively. These scores were considered satisfactory. MSD and prequalified suppliers were source of vaccines in Tanga region and dividend from RVS was the source of supply of vaccines in Lindi facilities. Majority of health care workers (52%) interviewed in Tanga had a poor knowledge regarding the use of anti-rabies vaccines as compared to those in Lindi region. Expired anti-rabies vaccines were observed in two health facilities in Korogwe District Hospital and Nyangao-Designated District Hospital in Tanga and Lindi respectively. **Conclusion:** From this study it can be concluded that, availability of anti-rabies vaccines is still a problem in health facilities in the two surveyed regions in

Tanzania. There is a problem of maintenance of cold chain system in storage facilities in both levels (hospitals and health centres) Based on these findings, poor level of knowledge regarding the use of anti-rabies vaccine among health care workers in surveyed health facilities was observed.

247. **Majigo M, Mhalu F, Manyahi J (et al). "Microbial Aetiology of Vaginal Discharge In Relation To Intra-Vaginal Pr actices among Women Attending Reproductive Health Clinic in Dar Es Salaam, Tanzania."** ***International Journal of Health Sciences and Research (IJHSR)*****. 2015; 5(5): 164-172.**

Genital discharge in women is due to different etiology. A significant high proportion of women globally practice douching, and drying vagina due to various reasons. These intra-vaginal practices have been reported to be associated with reproductive tract infections and HIV. The influence of these practices on vaginal discharge and reproductive tract infections in Tanzania was not well known. A cross sectional study was conducted between January 2003 and January 2004, investigating microbial etiology of vaginal discharge and its relationship with intra-vaginal practices among women presented with vaginal discharge at reproductive health clinic in Dar es Salaam. A structured questionnaire and laboratory forms were used to collect required information. Univariate and multivariate analysis were done. Three hundred twenty six women were enrolled. The median age was 26 years (range 16 - 63). A proportion of 81.9% and 50.3% reported practicing douching and drying vagina before sex respectively. Water (53.2%) and piece of cloth (95.3%) were the most often used material for douching and drying vagina respectively. Candida infection (44.3%) was the most prevalent RTI followed by bacterial vaginosis (41.2 %), while HIV seroprevalence was 26.6%. Douching was associated with higher risk of bacterial vaginosis (OR, 3.10, 95% CI (1.36 – 7.06)). The intra-vaginal practices were found widespread among women in Dar es Salaam, douching being significantly associated with Bacterial vaginosis. Provision of health education and proper counseling at reproductive health clinic on intra-vaginal practices is warranted besides treatment to control and prevent infections. The findings should prompt women to reconsider on intra-vaginal practices.

248. **Makani J, Mgaya J, Balandya E (et al.) "Bacteraemia in sickle cell anaemia is associated with low haemoglobin: a report of 890 admissions to a tertiary hospital in Tanzania." *British journal of hematology*. 2015; 171(2): 273-276.**

Bacteraemia is a leading cause of morbidity in sickle cell anaemia (SCA), but information from studies in Africa is limited. We evaluated 890 admissions from 648 SCA patients at a tertiary hospital in Tanzania. Bacteraemia was present in 43 admissions (4·8%); isolates included *Staphylococcus aureus* (12/43; 28%), non-Typhi *Salmonella* (9/43; 21%), *Streptococcus pneumonia* (3/43; 7%) and *Salmonella* Typhi (2/43; 5%). Compared to SCA patients without bacteraemia, SCA patients with bacteraemia had significantly lower haemoglobin [71 g/l vs. 62 g/l, odds ratio 0·72 (95% confidence interval 0·56–0·91), $P < 0·01$]. Further exploration is needed of the relationship between anaemia and bacterial infections in SCA in Africa.

249. **Makani J, Soka D, Rwezaula S, Krag M, Mghamba J, Ramaiya K, Cox SE, Grosse SD. Health policy for sickle cell disease in Africa: experience from Tanzania on interventions to reduce under-five mortality. *Tropical Medicine & International Health*. 2015; 20(2):184-7.**

Tanzania has made considerable progress towards reducing childhood mortality, achieving a 57% decrease between 1980 and 2011. This epidemiological transition will cause a reduction in the contribution of infectious diseases to childhood mortality and increase in contribution from non-communicable diseases (NCDs). Haemoglobinopathies are amongst the most common childhood NCDs, with sickle cell disease (SCD) being the commonest haemoglobinopathy in Africa. In Tanzania, 10 313 children with SCD under 5 years of age (U5) are estimated to die every year, contributing an estimated 7% of overall deaths in U5 children. Key policies that governments in Africa are able to implement would reduce mortality in SCD, focusing on newborn screening and comprehensive SCD care programmes. Such programmes would ensure that interventions such as prevention of infections using penicillin plus prompt diagnosis and treatment of complications are provided to all individuals with SCD.

250. **Makani J. "Knowledge management, research data management, and university scholarship: Towards an integrated institutional research data management support-system framework." : *VINE*. 2015; 45(3): 344-359.**

Purpose The purpose of this paper is to synthesize existing research on research data management (RDM), academic scholarship and knowledge management and provide a conceptual framework for an institutional research data management support-system (RDMSS) for systems development, managerial and academic use. **Design/methodology/approach** Viewing RDMSS from multiple theoretical perspectives, including data management, knowledge management, academic scholarship and the practice-based perspectives of knowledge and knowing, this paper conceptually explores the systems' elements needed in the development of an institutional RDM service by considering the underlying data discovery and application issues, as well as the nature of academic scholarship and knowledge creation, discovery, application and sharing motivations in a university environment. **Findings** – The paper provides general criteria for an institutional RDMSS framework. It suggests that RDM in universities is at the very heart of the knowledge life cycle and is a central ingredient to the academic scholarships of discovery, integration, teaching, engagement and application. **Research limitations/implications** – This is a conceptual exploration and as a result, the research findings may lack generalisability. Researchers are therefore encouraged to further empirically examine the proposed propositions. **Originality/value** – The broad RDMSS framework presented in this paper can be compared with the actual situation at universities and eventually guide recommendations for adaptations and (re)design of the institutional RDM infrastructure and knowledge discovery services environment. Moreover, this paper will help to address some of the identified underlying scholarship and RDM disciplinary divides and confusion constraining the effective functioning of the modern day university's RDM and data discovery environment.

251. **Makoye N, Shempemba P, Carneiro L, Severine A, Machibya F, Mandari G. Amelogenesis imperfecta: A problem to dental esthetics and oral functions. *3rd MUHAS Scientific Conference, 2015.***

Background: Amelogenesis Imperfecta is a rare inherited abnormality of the tooth enamel with a variable occurrence of approximately 1:4,000 to 1:14,000 in Western populations. It is not associated with any systemic disorder.**Aim**: To describe the management protocol used in the oral rehabilitation of two similar complicated cases of Amelogenesis Imperfecta. **Methods**: Management of this case was a multidisciplinary approach involving disciplines of restorative, orthodontics, prosthodontics and oral maxillofacial surgery. Investigations for both patients included OPG, Study models, periapical X-rays, vitality pulp testing and photographs. The treatment plan aimed at preserving the tooth structure, close spaces & anterior open bite, improving dental esthetics (appearance), improving oral functions, and prevent periodontal infection and further damage of enamel.**Results**: Two cases of a boy and a girl aged 22 years of age with similar complaints.Case 1: A boy with main concern of dissatisfaction with colour and general appearance of teeth, teeth hypersensitivity, lacking confidence, difficult pronouncing some words and chewing, a history of gingival pain and swelling. On examination he was found with small and yellow in colour teeth, several missing teeth, retained deciduous molars, no proximal contacts of teeth, anterior open bite, gingival recession and teeth rotation on anterior region. Temporary bridge using acrylic resin for anterior segment from canine – canine both jaws were fabricated. Three months recall examination revealed no pathology and the patient was satisfied with teeth appearance.Case 2: A girl with similar features except hypersensitivity and retained deciduous molars. One of her siblings has small sized teeth. Closing of spaces was done by fixed orthodontic appliances. Future treatment includes; root canal treatment, crowning of tooth 23 and 43, periodontal surgery crown lengthening and eruption of impacted teeth.**Conclusion**: Proper multidisciplinarytreatment of Amelogenesis Imperfecta relives patients of their complaints, improves functionand aesthetics.

252. **Makubi A, Hage C, Lwakatare J, Kisenge P, Makani J, Rydén L, Lund L. Contemporary etiology, clinical characteristics and prognosis of adults with heart failure observed in a tertiary hospital in Tanzania.The prospective Tanzania Heart failure (TaHeF) study. *3rd MUHAS Scientific Conference*, 2015.**

Objective: This study aimed to describe the contemporaryetiology, clinical characteristics and mortality and its predictors in heart failure (HF) in Tanzania.

Methods: *Design*: Prospective observational study.*Setting*: Cardiovascular Center of the Muhimbili National Hospital in Dar es Salaam, Tanzania. *Participants*: Patients ≥18 years of age with HF defined by the Framingham criteria *Main outcome measure*: All-cause mortality.**Results:** Among 427 included patients, 217 (51%) were females and the mean (standard deviation) age was 55 (17) years. Heart failure etiologies included hypertension (45%), cardiomyopathy (28%), rheumatic heart disease (RHD) (12%) and ischemic heart disease (9%). Concurrent atrial fibrillation (AF), clinically significant anemia, diabetes, tuberculosis and HIV were found in 16%, 12%, 12%, 3%, and 2%, respectively, while warfarin was used in 3% of the patients.The mortality rate, 22.4 per 100 person-years over a median follow-up of 7 months, was independently associated with AF, hazard ratio 3.4 (95% confidence interval 1.6 to 7.0); in-patient 3.2 (1.5 to 6.8); anemia 2.3 (1.2 to 4.5); pulmonary hypertension 2.1 (1.1 to 4.2) creatinine clearance 0.98 (0.97 to 1.00) and lack of education 2.3 (1.3 to 4.2).**Conclusion:** In HF in Tanzania, patients are younger than in the developed world, but etiologies are becoming more similar, with hypertension becoming more and RHD less important. Predictors of mortality possible to intervene against are anaemia, AF and lack of education.

253. **Makubi A, Hage C, Lwakatare J' Kisenge P,Mmbando B, Rydé L, Lund L, Makani J**. **Prevalence, correlates and prognostic implications of anemia and iron deficiency in Tanzanian patients with heart failure:** ***A report from the TaHeF study. 3rd MUHAS Scientific Conference*****, 2015.**

Background: Despite advances in management of heart failure, the quality of life and other outcomes remain suboptimal especially in a setting of anemia and iron deficiency. The characterization of anemia and iron deficiency in heart failure also seems to be limited in Sub-Saharan Africa **Objective:** We examined the prevalence, correlates and prognostic implications of anemia and iron deficiency in Tanzanian patients with heart failure.**Methods:** Cross-sectional and longitudinal study, *Setting*: Cardiovascular Center of the Muhimbili National Hospital in Dar es Salaam, Tanzania. *Participants*: Patients ≥18 years of age with HF (defined by the Framingham criteria) whose hemoglobin measurements were available.*Main outcome measure*: Severe outcomes (death and hospitalization) **Results:** A total of 401 patients were available for analysis. The prevalence of anemia in patients with heart failure was 57% while that of iron

deficiency (ID) was 48%. Among patients with anemia, iron deficiency anemia (IDA) accounted for 60% of the cases. The risk of developing anemia in heart failure increased by four fold among patients with atrial fibrillation and by approximately twofold among patients who lived is Dare es Salaam. Also anemia was independently associated with renal dysfunction, odds ratio 0.98 (95% confidence interval 0.97 to 0.99); low total cholesterol 0.77(0.61-0.96) and low LV ejection fraction 0.04(0.01-0.32). There was significantly higher rate of severe outcomes associated with IDA (adjusted HR: 2.67; 95% CI: 1.39- 5.07) as compared to no anemia or ID alone (both $P<0.003$) and this relationship appeared to be linear.**Conclusion**: There was a high prevalence of anemia and iron deficiency among adults with heart failure. Identification of risk factors for anemia should be encouraged in heart failure settings. Iron deficiency appears to have marked prognostic effect on severe outcomes independent of the anemia.

254. **Makubi A, Okuma J, Spiegelman D, Hawkins C, Darling AM, Jackson E, Mugusi F, Chalamilla G, Fawzi WW. Burden and Determinants of Severe Anemia among HIV-Infected Adults Results from a Large Urban HIV Program in Tanzania, East Africa. Journal of the International Association of Providers of AIDS Care (JIAPAC). 2015:2325957413488195.**

Background and Methods: This cross-sectional study aimed at determining the prevalence and risk factors for severe anemia, severe microcytic anemia, and severe normocytic anemia among HIV-infected individuals aged >15 years. Univariate and multivariate analyses were performed to identify the risk factors for anemia. **Results:** Data from 40 408 patients were analyzed, showing an overall prevalence of 22% for severe anemia. The risk of developing severe anemia increased by 49% among patients with a body mass index of <18.5 kg/m2, by approximately 2-fold among patients with the World Health Organization (WHO) stage III, and by 3-fold among patients with WHO stage IV illness. Severe normocytic anemia was uniquely increased among patients aged ≥50 years, among those with chronic diarrhea and Kaposi sarcoma, and those taking cotrimoxazole. **Conclusion**: There was a high prevalence of severe anemia among adults infected with HIV. Focused identification of anemia should be based on the hemoglobin and mean corpuscular volume measurements.

255. **Makula J. Occurrence of side effects of human papilloma virus vaccine and associated misconceptions in Kilimanjaro Region. Master of Public Health *Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: According to 2012 statistics, cervical cancer ranks the fourth most common cancer affecting women worldwide after breast, colorectal, and lung cancers. In sub-Saharan Africa, 34.8 new cases of cervical cancer are diagnosed per 100 000 women annually, and 22.5 per 100 000 women die from the disease. Tanzania has one of the highest burdens of cervical cancer in the world and the highest among East African countries. With the support from GAVI the MoHSW has introduced Human Papilloma Virus (HPV) vaccine, Gardasil as one of the primary prevention interventions to prevent women from cervical cancer. The HPV vaccination demonstration programme implemented in 2014 used the school based approach in 7 districts of Kilimanjaro region. **Objective:** The aim of this research is to study the occurrence of side effects after HPV-Gardasil vaccination among young girls and associated misconceptions in Kilimanjaro region. **Methodology:** The study had two parts: quantitative cross-sectional descriptive study and qualitative FGDs. The study population was girls of grade 4 and parents of girls of grade 4 in Kilimanjaro region with the total sample size of 394 girls and 370 parents using a multistage sampling was done. Qualitative data were analyzed using SPSS version 15.0 and quantitative data were analyzed using thematic analysis. **Results:** A total of 394 girls and 370 parents were interviewed and six focused group discussions were conducted. Majority of girls interviewed (95.1%) were vaccinated. Only 2.4% of them reported that their parents refused the vaccination. Only 20.7% of the girls reported side effects after vaccination. Majority of the girls who experienced side effects reported pain at the injection site (59%). Other common side effects were swelling, and reddishness at the injection site. FGDs revealed two major groups; those who accept the vaccine and those who don't. Both groups acknowledge the fact that cervical cancer is claiming lives of women but parents who refused to vaccinate their children did not believe that the vaccine is safe for the health of their children. To them the vaccine has more harm to their children than benefits. All groups agreed that there are misconceptions about the vaccine in the community. The mostly mentioned one being failure of a girl to conceive when she is married (infertility). **Conclusion:** It was conclude that; Gardasil

vaccine is widely accepted in Kilimanjaro region and most people feels that the vaccine is important for their health. Recommendation: The study recommends Health education information must be provided to girls, teachers, boys and parents to enable them understand cervical cancer as a disease and how HPV vaccination is important to prevention of this cancer.

256. **Makundi RP**. **Efficacy of Single versus Multiple Dose Antibiotic Prophylaxis in Elective Pediatric Surgeries at Muhimbili National Hospital, a Randomized Controlled Trial. Master of Medicine (General Surgery)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Postoperative healthcare-associated infections (HAI) still remain as one of the most significant complications of surgical procedures with surgical site infection (SSI), a form of HAI, constituting up to 20% of all the postoperative HAI. Several guidelines on appropriate surgical antibiotic prophylaxis (SAP) have been published in recent years, in most of which the use of single-dose antimicrobial prophylaxis for major surgery is a generally acknowledged principle. However, in practice, experience has shown that surgeons' compliance with these recommendations can be hard to obtain and consequently single-dose SAP has not been universally accepted, with multiple-dose regimens still practiced in many centers. In Muhimbili National Hospital (MNH) observational pilot studies and audits on appropriateness of SAP have shown that inappropriate antibiotic use is common practice with up to 50% of patients receiving antibiotics in contrary to the existing international guideline recommendations, the current practice being justifiable by lack of evidence based local studies on surgical antibiotic prophylaxis in resource limited health care settings. We used non-inferiority randomized controlled trial to investigate the effectiveness of preoperative single-dose intravenous antimicrobial prophylaxis versus multiple-dose intravenous antimicrobial prophylaxis in prevention of postoperative surgical site infections (SSIs) in patients undergoing elective pediatric surgeries at Muhimbili National Hospital. **Objective:** To compare the efficacy of single versus multiple dose antibiotic prophylaxis in elective pediatric surgeries at Muhimbili National Hospital. **Methods:** An open label, two-armed, randomized non-inferiority controlled trial was conducted at MNH in which a total of 132 eligible candidates were randomized into two groups. Group A received a single

preoperative dose of Ceftriaxone alone or in combination with Metronidazole, while group B received a preoperative dose as in group A followed by additional doses of the same preoperative drugs for 3 days. The two groups were followed for 30 days and assessed for development of SSIs based on CDC criteria. The proportion of participants who developed SSIs in the two study arms was compared. **Results:** The final analysis is for 119 participants (90%; 119/132). The mean age of the study participants was 29.9 + 26.7 months with males comprising 72.2% of patients. Reasons for surgery included hernia and hydrocele (42.8%), congenital anorectal anomalies (28.5%) and less commonly head and neck masses (3.3%) and skin lesions (1.6%). Surgical-site infection occurred in 2 out of the 60 (3.3%) receiving single dose compared to 7 out of the 59 (11.8%) receiving multiple doses, the difference which was not statistically significant (Fishers exact test, p=0.095). **Conclusion:** The efficacy of single preoperative antibiotic prophylaxis is comparable to that of multiple doses in clean and clean contaminated pediatric surgical procedures at Muhimbili national hospital and its use can be safely considered with advantages of reduced costs, workload to hospital staff and concerns regarding antibiotic resistance.

257.

Makunja C. Awareness of eye injuries and utilization of safety measures among welders in Ilala District, Dar es Salaam. Master of MMed (Ophthalmology) ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Ocular trauma is an avoidable cause of monocular blindness and visual impairment worldwide. Some individuals are at increased risk of eye injury as a result of their occupation. Welding has been associated with increased risk of ocular injuries hence it is important to wear appropriate eye protection in all weldingoperations to prevent ocular injury. Small scale industries in developing countries have been reported to be associated with increased risks of ocular injuries which are related to poor working conditions, long hours at work and poor organization as regards safety measures(1). Broad **objective:** To determine the awareness of eye injuries and utilization of correct safety measures among welders in Ilala District, Dar es Salaam. **Methodology:** This was a seven month small scale industrial based, cross-sectional descriptive study, conducted at Ilala District, Dar es Salaam, Tanzania, from July 2014 to January 2015. The welding

sites were collected by convenient sampling until the sample size was reached. All ethical issues were considered **Results:** This study included 200 welders. All welders were males. Commonly performed type of welding was Shield metal arc welding (74.5%). The age range was from 15 years to 63 years with the mean age of 32.6 years. The highest level of education attained by the majorityof the study subjects was primary level education (63.5%). About seventy six percent of welders learned welding through apprenticeship whereby a third of them had welding experience of between 1-5 years. About 36% welded between 4-5 hrs per day.Awareness on the importance of using visual protective devices while welding was (96.5%). 87.5% mentioned to be using eye protection while welding, 46.1% had eye injury during welding among whom 82.4% did not wear visual protection at the time of injury. Reasons for not wearing personal protective equipment (PPE) included interference with vision, high cost and they are not provided by the employers. Majority (79.8%) of the injuries occurred in the past 3months and 92.7% had history of eye injury for more than twice. **Recommendation**: Public health education on the importance of using eye protections and good working environment should be provided to welders.

258. **Malale D, Gwassa S, Hasegawa A, Tanaka A. Do you know the situation of nutritional assessment in People Living with HIV?** ***3rd MUHAS Scientific Conference, 2015.***

Background: The Ready to Use Therapeutic Food (RUTF) Programme commenced in Kongwa District Hospital through Tanzania Food and Nutrition Centre with the support of Global Fund in August 2011. It targets less than 5 years children severely malnourished and people living with HIV (PLHIV). **Aim:** To clarify practical methods applied in the hospital to assess nutritional status in PLHIV, especially adults who are above 20 years old. **Methods:**We collected 208 data of the subjects from 251 of all ages that were routinely collected in RUTF register from August 2011 to April 2014, and reviewed their anthropometric values, including weight, height, body mass index (BMI) and mid upper arm circumference (MUAC). We calculated BMI for those who were missing the values, and compared the results of nutritional status using BMI and MUAC. **Results:** The values of weight were available for 187 (89.9%), height for 96 (46.2%), BMI for 0 (0%), and MUAC for 206 (99.0%). The subjects measured all for weight,

height, and MUAC were 94 (45.2%). Of those 94 subjects, 29 (30.9%) were not evaluated as malnutrition by BMI. Of 40 subjects who were evaluated as severe malnutrition by BMI, 26 (65.0%) were evaluated as moderate malnutrition by MUAC.**Conclusions:** BMI is recommended to assess nutritional status in adults including PLHIV. This study also supports the recommendation. A risk is high to miss out severe malnutrition by MUAC due to the low sensitivity, compared with BMI. We suggest replacing MUAC with BMI to assess nutritional status in adults of PLHIV through the familiarization of BMI chart to the staff as the first step. Furthermore, in reality where we depend only on anthropometric values to assess nutritional status in Kongwa District Hospital, it is essential to conduct assessments completely and accurately every time for all the clients.

259. **Malama A. Primary intracranial tumour imaging findings among patients referred for brain magnetic resonance imaging at Muhimbili national hospital, Dar es salaam, Tanzania. Master of MMed (Radiology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Brain tumours are a worldwide health problem. Despite the numerous studies done on intracranial tumours less is known on Magnetic Resonance Imaging (MRI) intracranial tumour patterns in Tanzania. **Objective:** Determining the pattern of primary intracranial tumours among patients referred for brain MRI at Muhimbili National Hospital (MNH) from July-December 2014. **Methodology:** This descriptive cross-sectional study involved 51 individuals selected from patients referred for brain MRI at MNH. A questionnaire was administered to obtain patient demographic data and MRI findings. Statistical analysis was performed using computer program Statistical Package for Social Sciences (SPSS) version; 20. Results: The age ranged from 3 to 69 years with mean age of 35.3 years. The male to female ratio was 1: 1.3. Meningioma was the most common intracranial tumour 20 (30.2%). Craniopharyngioma had equal distribution in both males and females. Supratentorial tumours were more common intracranial tumours 43 (84.3%).The cerebrum was the most site 41 (80.4%) and in majority of patients, tumours were located in the frontal lobe 14 (34.1%). Low grade and high grade tumours were significantly associated with homogeneous and ring enhancement respectively (P-value = 0.0001). Signal intensity was not significantly

associated with tumour grade. **Conclusion:** Meningioma was the most common primary intracranial tumour. Craniopharyngioma had shown no sex predilection. Supratentorial tumours were common and mostly located in the frontal lobe. Low grade tumours were associated with homogeneous enhancement and high grade tumours with ring enhancement. Signal intensity was not associated with tumour grade. Recommendations: There is a need for more studies to be conducted on intracranial tumours using bigger sample sizes and also correlate the radiological diagnosis with histological findings.

260. Malebo HM, Wiketye V, Katani SJ, Kitufe NA, Nyigo VA, Imeda CP, Mammuya B. In vivo antiplasmodial and toxicological effect of Maytenus senegalensis traditionally used in the treatment of malaria in Tanzania. ***Malaria journal*****. 2015.** ***14*****(1): 1-7.**

Background: In Tanzania and elsewhere, medicinal plants, including Maytenus senegalensis, are still widely used in the treatment of malaria and other ailments. The aim of the present study was to investigate the in vivo antiplasmodial and toxic effects in mice. **Methods:** Oral antiplasmodial and acute toxicity of the ethanolic root extract of M. senegalensis was evaluated in mice. The Peters 4-day in vivo antiplasmodial effect against early rodent malaria infection in chloroquine-sensitive Plasmodium berghei NK 65 strain in mice. **Results:** The M. senegalensis extract was found non-toxic and the oral median lethal dose in mice was determined to be greater than 1,600 mg/kg body weight. The findings revealed a significant ($P = 0.001$) daily increase in the level of parasitaemia in the parasitized untreated groups and a significant ($P < 0.001$) dose dependent decrease in parasitaemia in the parasitized groups treated with varying doses ranging from 25 to 100 mg/kg body weight of M. senegalensis extract and the standard drug sulphadoxine/pyrimethamine at 25/1.25 mg/kg body weight. Overall, the dose dependent parasitaemia suppression effects were in the order of: 25/1.25 mg/kg body weight of sulphadoxine/ pyrimethamine > 100 mg/kg > 75 mg/kg > 50 mg/kg > 25 mg/kg body weight of M. senegalensis extract. **Conclusion:** The implications of these findings is that M. senegalensis ethanolic root bark extract possess potent antiplasmodial effect and may, therefore, serve as potential sources of safe, effective and affordable anti-malarial drugs. The displayed high in vivo antiplasmodial activity and lack of toxic effect render M. senegalensis a candidate for the bioassay-guided isolation of compounds which could

develop into new lead structures and candidates for drug development programmes against human malaria.

261. **Maman S, Kajula L, Balvanz P, Kilonzo M, Mulawa M, Yamanis T. Leveraging strong social ties among young men in Dar es Salaam: a pilot intervention of microfinance and peer leadership for HIV and gender-based violence prevention. *Global public health*. 2015; 17:1-4.**

Gender inequality is at the core of the HIV patterns that are evident in sub-Saharan Africa. Gender-based violence (GBV) and lack of economic opportunity are important structural determinants of HIV risk. We piloted a microfinance and health promotion intervention among social networks of primarily young men in Dar es Salaam. Twenty-two individuals participated in the microfinance component and 30 peer leaders were recruited and trained in the peer health leadership component. We collected and analyzed observational data from trainings, monitoring data on loan repayment, and reports of peer conversations to assess the feasibility and acceptability of the intervention. Eighteen of the loan recipients (82%) paid back their loans, and of these 15 (83%) received a second, larger loan. Among the loan defaulters, one died, one had chronic health problems, and two disappeared, one of whom was imprisoned for theft. The majority of conversations reported by peer health leaders focused on condoms, sexual partner selection, and HIV testing. Few peer leaders reported conversations about GBV. We demonstrated the feasibility and acceptability of this innovative HIV and GBV prevention intervention. The lessons learned from this pilot have informed the implementation of a cluster-randomized trial of the microfinance and peer health leadership intervention.

262. **Mamuya S. Respiratory Health symptoms among street cleaners of Dar es Salaam City. *3rd MUHAS Scientific Conference, 2015.***

Background: Street working environment condition expose workers to organic and inorganic dust from petroleum products, vehicle fumes and dust from the road. Continuous exposure may predispose workers to respiratory health problems ranging from acute to chronic symptoms.**Objective:** To determine the prevalence of respiratory health symptoms and associated factors among street sweepers in Dar es Salaam city roads. **Methodology:** Cross-sectional analytical study was designed. 102 street sweepers

and 85 street vegetable sellers none smokers from Ilala Municipal who had worked for more than one year were studied. Respiratory health symptoms and socio-demographic information were collected by using a modified American Thoracic Society respiratory symptoms questionnaire. Levels of utilization of PPEs were assessed by closed ended questions. Frequency distributions were generated. Chi square test and logistic regression were used to test associations. **Results:** The prevalence of respiratory health symptoms was higher among exposed than unexposed group and the difference was statistically significant($P<0.05$), for cough(54.9% vs 12.9%, phlegm (39.2%vs7.1%),wheezing(32.4%vs14.1%), nose irritating (35.8%vs4.7%), and sneezing (63.7%vs 8.2%). Street sweeping dust was the main associated factor to cough, phlegm, wheezing, nose irritating and wheezing outcomes, while age associated with cough and phlegm outcomes. Duration of employment associated with cough and breathlessness outcomes among street sweepers, the association was statistically significant $p<0.05$. **Conclusion:** Respiratory health symptoms are associated with street sweeping dust exposure and the prevalence of respiratory health symptoms are higher among exposed group than unexposed group. It is recommended that the appropriate PPEs be used during street sweeping and medical intervention be implemented for further diagnostic like sputum testing, chest x-ray for street sweepers. A follow-up study with a strong causal relationship is recommended.

263. **Mangara H, Mmari H. Participation of the Prisons Service in HIV Vaccine Trials Co-Ordinated by the Muhimbili University of Health and Allied Sciences, Dar Es Salaam, Tanzania. *3rd MUHAS Scientific Conference,* 2015.**

Background: Infection with HIV and AIDS remain to be problems of Public Health Importance, despite the presence of a number of prevention strategies. Availability of an effective vaccine against HIV vaccine is therefore important. The Prisons Service has actively participated in the TaMoVac-I and II trials co-ordinated by MUHAS.**Objective:** To describe participation of the Prisons service in TaMoVac-I and II trials.**Methods:** Having received approvals from relevant authorities, consenting Prisons Officers from a number of stations were screened and eventually enrolled into the HIV vaccine trials. Prior to screening, the officers participated in a number of educational sessions on HIV and HIV vaccine trials. The TMV-I trial was conducted between 2010 and 2012, while

the TMV-II trial was conducted between 2012 up to Nov 2014 The Prisons Medical team worked closely with the MUHAS team to facilitate volunteers' participation. A number of challenges have been experienced.**Results**: A total of 68 officers were screened for the TMV-I trial of whom 31% were enrolled. In TMV-II trial, 12 officers were screened, and 33% were enrolled. They were from Segerea, Keko and Ukonga prisons. The relative proportions of volunteers from the Prisons service enrolled in the TMV-I and II trials were 21/60 (35%) and m/n 4/80(5%) respectively. Challenges noted include rampant misconceptions that volunteers were being implanted with an HIV virus, as well as negative reactions towards volunteers participation from peers and significant others. **Conclusions:** Despite earlier participation in the TMV-I trial, there was even less number of Prison Officers who participated in TMV-II. Additionally, misconceptions are still rampant. More aggressive educational sessions need to be targeted to members of the Prisons Service are necessary.

264. **Mangi E, Nyamhaggatta M, Lwezaula S, Moshiro C. Prevalence and predictors of HIV infection among adults aged 50 years and above in Shinyanga, Iringa and Ruvuma regions of Tanzania. *3rd MUHAS Scientific Conference, 2015.***

Background: The UNAIDS 2013 UNAIDS Report on the global AIDS epidemic and aging reveals that out of the global total of 35.3 million [32.2 million – 38.8 million] people living with HIV, an estimated 3.6 million [3.2 million–3.9 million] are people aged 50 years or older. Unfortunately, there is paucity of information in Tanzania to explain various factors associated with increasing HIV infection in adults aged more than 50 years. We conducted a cross sectional study in Shinyanga, Iringa and Ruvuma regions to determine the prevalence and risk factors of HIV infection among adults aged 50 years and above. **Methods:** A sample of 2215 participants was recruited using multistage cluster sampling. HIV testing for consenting individuals was conducted and a structured questionnaire was used for collection of data on socio-demographic information, medical conditions and sexual behavioral factors. In addition, focus group discussions explored various factors associated with HIV infection. HIV testing was done according to the National HIV Testing and counseling algorithm.**Results:** The overall prevalence of HIV infection was 4.4% (95% CI=3.6-5.4). Results also reveal that the overall prevalence of HIV infection is higher among females compared to males in all three regions. Among

males, HIV infection was higher in Iringa (5.0%) compared to Ruvuma (1.4%) and Shinyanga (3.8%). Similarly, the prevalence of HIV infection was 9.1%, 1.9% and 5.4% in Iringa, Ruvuma and Shinyanga regions. Majority of study participants were aware of HIV, its modes of transmission and prevention. Findings also indicated that level of education was not associated with risk of HIV infection.**Conclusion:** The high prevalence of HIV among adults underscores the need for increased attention to underlying risk factors in the study regions. Perhaps there is a need to explore the secrecy and/or reluctance surrounding HIV status disclosure reported by respondents. The fact that a good number of adults reported to experience symptoms suggestive of TB highlights the potential risk for HIV-TB co- infection. Additional research is warranted to fully explain this reported trend.

265. **Mani M, Jacob M, Guidon A (et al.) "Acceleration of high angular and spatial resolution diffusion imaging using compressed sensing with multichannel spiral data."** ***Magnetic resonance in medicine.2015;*** **73(1): 126-138.**

Purpose: To accelerate the acquisition of simultaneously high spatial and angular resolution diffusion imaging **Methods:** Accelerated imaging is achieved by recovering the diffusion signal at all voxels simultaneously from under-sampled k-q space data using a compressed sensing algorithm. The diffusion signal at each voxel is modeled as a sparse complex Gaussian mixture model. The joint recovery scheme enables incoherent under-sampling of the 5-D k-q space, obtained by randomly skipping interleaves of a multishot variable density spiral trajectory. This sampling and reconstruction strategy is observed to provide considerably improved reconstructions than classical k-q under-sampling and reconstruction schemes. The complex model enables to account for the noise statistics without compromising the computational efficiency and theoretical convergence guarantees. The reconstruction framework also incorporates compensation of motion induced phase errors that result from the multishot acquisition. Result Reconstructions of the diffusion signal from under-sampled data using the proposed Method yields accurate results with errors less that 5% for different accelerations and *b*-values. The proposed method is also shown to perform better than standard k-q acceleration schemes. **Conclusions:** The proposed scheme can significantly accelerate

the acquisition of high spatial and angular resolution diffusion imaging by accurately reconstructing crossing fiber architectures from under-sampled data.

266. **Manji M. Prevalence and correlates of impaired lung functions among patients with PTB in Dar es Salaam. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences.***

Background and justification: Despite adequate treatment for pulmonary Tuberculosis (TB), approximately 40-60% of patients remain sufferers of lifelong sequelae of the disease with evidence of obstructive, restrictive or mixed patterns of lung disease. These long term sequela contribute about 75% of the overall morbidity due to TB. Although Tanzania is one of the 22 high TB burdened countries in the world, the prevalence of TB sequelae remains unknown and the magnitude of post TB sequelae remains poorly addressed. **Objective:** To assess lung functions among patients with pulmonary tuberculosis, who have completed at least 20 of 24 weeks of anti-tuberculous medications in Dar es salaam. **Methodology:** A descriptive cross sectional study was carried out at two TB clinics in Temeke municipality between March and September 2014. A total of501patients with pulmonary Tuberculosis (PTB) who were attending the clinic and had completed 20 weeks of Anti TB regime were enrolled via a consecutive sampling method. Data was collected by using a clinical record form which was followed by spirometry to assess lung functions (FEV1, FVC AND FEV1: FEV %) and categorized as having normal, obstructive, restrictive or mixed pattern of lung dysfunction. For 191 patients, chest x rays were performed and the extent of lung infiltration was scored from 0 (normal X ray) to 18 (maximum infiltration). Data about individual radiographic lesions was also obtained. Data was entered into a pre-designed Ms Excel spreadsheet and then imported into SPSS 15.0 for analysis. Proportions were calculated for categorical data and median (interquartile range) were used to describe none normally distributed numerical data respectively. Chi squared test and t test were used to test categorical and numerical variables against lung function respectively. Multivariate logistic regression was performed to determine the effect of various predictors on lung function. Comparisons of different prediction equations were done by the paired t test. ROC curves were generated to determine the utility of peak expiratory flow as a screening test for pulmonary impairment. **Results:** Impaired lung functions were present

in 371 patients (74%). There were 209 patients (42%) with obstructive, 66 patients (13%) with restrictive and 96 patients (19%) with mixed patterns of lung disease respectively. Significant predictors for impaired lung functions included recurrent TB (Adj OR 2.8, CI 1.274 - 6.106), HIV Negative status (Adj OR 1.7, CI 1.055 - 2.583), age more than 40 years (Adj OR 1.7, CI 1.080 - 2.804) and male sex (Adj OR 1.7, CI 1.123 - 2.614). None of the radiographic parameters were significantly associated with impairment. The prediction equation from the National Health and Nutrition Examination Survey (NHANES) III generated significantly higher mean values of FEV1 and FVC as compared to the Tanzanian prediction equations ($p < 0.01$ for FEV1 and FVC respectively). Peak expiratory flow at a cutoff of <60 % predicted, gives a sensitivity of 70% and specificity of 69% (AUC 0.766) in detecting pulmonary impairment. **Conclusion and Recommendation:** The prevalence of residual lung function impairment is high among patients who have completed at least 20 week of anti tuberculosis medication. Age older than 40 years, male sex, recurrent TB and HIV negative status were significantly associated with impaired lung function. Further studies to examine the economic burden of these impairments in TB survivors and interventions for treatment are warranted.

267. **Manji T. The impact of steam inhalation in preventing respiratory tract symptoms among post-abdominal surgeries at Muhimbili National Hospital**. ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Post-operative patients experience discomfort due to respiratory symptoms that develop as a result of anesthesia. One of the methodologies used to relieve these symptoms is by steam inhalation. There have been limited studies conducted about the impact of steam inhalation and the role of nurses in implementing the above tactic for improving the outcome of these patients. **Materials and methods:** A pre-post test quasi-design was conducted at the Sewa Haji ward of Muhimbili National Hospital. A total of 172 patients who had undergone abdominal surgery were recruited and randomized between the experiment group (86 participants) and the control group (86 patients) in a 1:1 ratio. Steam inhalation therapy was given to the experiment group for 15 minutes three times a day for three days while the control group received ambient air at room temperature. Participants were evaluated at baseline and re assessed on their fourth post-

operative day for respiratory tract symptoms. Data was analysed using SPSS version 16.0. Results were summarized using frequencies and percentages, and presented using figures, tables and text. **Results:** The data that was collected from 172 participants, (86 control group, and 86 experimental groups). Several parameters were tested including age, sex, occupation, type of anesthesia, duration of stay in the hospital, type of surgery performed, vital signs such as; temperature, blood pressure, respiration rate, oxygen saturation; symptoms such as; breath sounds, cough, phlegm, hoarseness of voice, throat irritation, painful swallowing, feeling of phlegm, running nose, breathlessness and headache. In regards to the age, majority of participants were found to be between 20 and 48 years, in both the control and the experimental group. In terms of sex, majority were females compared to males in both control and experimental groups. In regards to occupation, 51.2% were found to be employees in control group compared to the 46.5% in the experimental group. In the control group, 63.9% had symptoms after receiving general anesthesia while none of the participants had symptoms after spinal anesthesia. It was also documented that the duration of stay in the hospital was more related to the type of surgery compared to the respiratory symptoms. Majority of the participants in both groups who stayed for more than one week in the hospital were those who underwent exploratory laparatomy, nephrectomy and none who underwent LSCS. In terms of all the vitals, they were significantly reduced in the experimental group compared to the control group after the use of steam inhalation. The same goes to the symptoms mentioned above. They were all significantly reduced in the participants who received the intervention compared to those who were left to take in ambient air during the post-operative period. Thus it comes to show that, by use of steam inhalation it brings comfort to the patient by alleviating the respiratory symptoms and also hastens the process of recovery. Recommendations: This study could advocate for the adaptation of steam inhalation in post-operative management and may inform the Ministry of Health to include this practice in the guidelines for routine care. **Conclusions:** Steam inhalation therapy has shown effective among post-abdominal surgical patients and was found to benefit the patients by reducing respiratory tract symptoms such as respiration rate, temperature, and presence of phlegm, feeling of phlegm, hoarseness and headache.

268. **Manyahi J, (et al.) "Prevalence of HIV and syphilis infections among pregnant women attending antenatal clinics in Tanzania, 2011."** ***BMC public health. 2015;*** **15*****(1): 1.***

Background: The occurrence of HIV-1 and syphilis infections during pregnancy poses major health risks to the foetus due to mother-to-child transmission. We conducted surveillance of HIV and syphilis infections among pregnant women attending antenatal clinics (ANCs) in Mainland Tanzania in 2011. **Methods:** This surveillance was carried out in 133 ANCs selected from 21 regions in Tanzania. In each region, six ANC sites were selected, with urban, semi-urban, and rural areas contributing two each. All pregnant women who were attending selected sentinel ANC sites for the first time at any pregnancy between September and December 2011 were enrolled. Serial ELISA assays were performed to detect HIV infection in an unlinked anonymous manner using dried blood spot (DBS) after routine syphilis testing. Data analysis was conducted using Stata v.12 software. **Results:** A total of 39,698 pregnant women representing 2.4 % of all pregnant women (1.68 million) attending ANCs in the Mainland Tanzania were enrolled. The overall HIV prevalence was found to be 5.6 % (95 % CI: 5.4–5.8 %). The risk for HIV infection was significantly higher among women aged 25–34 (cOR = 1.97, 95 % CI: 1.79–2.16; $p < 0.05$), older than 35 years (cOR = 1.88, 95 % CI: 1.62–2.17; $p < 0.05$) and those having 1–2 and 3–4 previous pregnancies. HIV infection was less prevalent among women attending rural ANC clinics (cOR = 0.46, 95 % CI 0.4–0.52; $p < 0.05$). The overall syphilis prevalence was 2.5 % (95 % CI: 2.3, 3.6). The risk for syphilis infection was significantly higher among women attending semi-urban and rural clinics and those having 3–4, and 5 previous pregnancies ($p < 0.05$). Marital status and level of education were not statistically significant with either of the two infections. HIV and syphilis co-infections occurred in 109 of 38,928 (0.3 %). **Conclusion:** The overall prevalence of HIV infection (5.6 %) and syphilis (2.5 %) found among pregnant women attending ANC clinics in Tanzania calls for further strengthening of current intervention measures, which include scaling up the integration of prevention of mother to child transmission (PMTCT) services in Reproductive and Child Health (RCH) clinics.

269. **Mapondellan KB. A Prevalence of Allergic Rhinitis and Associated Complications among Patients Receiving Ortorhinolaryngology Services at Muhimbili National**

Hospital. Master of Medicine (Ortorhinolaryngology) ***Dissertation 2015.Muhimbili University of Health and Allied Sciences.***

It is estimated that about 1.4 billion people are suffering from allergic rhinitis worldwide. The burden of this disease has been on the rise according to the recent studies which are going on, and the quality of life to people with the condition is affected significantly but there is very limited information on its pattern and magnitude in East Africa especially Tanzania. The study aims at reveal the baseline information concerning the pattern of AR and Tanzania. This was descriptive cross-sectional study involving all patients with a clinical diagnosis of allergic rhinitis at Muhimbili national hospital who was receiving ORL services over a period of three months between September 2014 and November 2014. Data was collected using a pre-tested coded questionnaire and analyzed using SPSS statistical computer software version 21. During the study period, a total of 1984 patients received ORL services at Muhimbili national hospital. Of these, 193 patients had a clinical diagnosis of Allergic rhinitis. This makes a prevalence of 10.3% of cases. The male to female ratio of 1:1 and the mean age of attended patients was 22.1 years (SD=1 .6). About 80% of patients were coming from Dar es Salaam. Adenoid hypertrophy, tonsillitis, hypertrophy of inferior turbinate, nasal polyps, otitis media, middle ear effusion and sinusitis were the most common complications affecting more than 90% of cases and were the major reason for attending hospital services. The commonest allergen detected was dust mite and house dust and perfume was the commonest self reported triggers of allergic rhinitis. The study shows that allergic rhinitis is common in our settings representing 10.3% of all Ortorhinolaryngology conditions and commonly affecting children and adolescent. Victims seek medical services due to complications of which combination of surgical and medical treatment was needed. High index of suspicion in diagnosing allergic rhinitis and early treatment is suggested.

270. **Marealle A, (et al). "Amino Acids in Tanzanian Children with Sickle Cell Disease: Baseline results of the Vascular Function Intervention Trial (V-FIT)."** ***The FASEB Journal*****. 2015; 29(1) 729-14.**

A Poor nutritional status is common in SCD but there are no strategies to improve nutrition. Vascular function is also impaired and may underlie SCD related

complications. V-FIT (NCT01718054) is a double blind, random order, cross over trial of a daily ready-to-use supplementary food (RUSF) (500 kcal, 1 RDA vits & minerals, 1mg folate, Nutriset) and the same RUSF fortified with argentine & citrulline (RUSFv, 0.2g/kg/d & 0.1g/kg/d), designed to improve growth and vascular function. Here we report baseline amino acid profiles, nutritional status and their association in children enrolled in V-FIT. Methods: Children (N=119) with SCD aged 8-11.9 y were enrolled. Blood samples were collected, height, weight and whole body fat free mass (WBFFM) measured by impedance (Tanita BC418). Blood samples were processed within 2h and amino acids measured (Biochrom 30). Results: Stunting (height for age Z score [HAZ] <-2) and wasting (BMI for age Z score [BMIZ] <-2) were common: 53% & 37%. Mean HAZ = -2.09 (SD=1.01) & BMIZ = -1.71 (SD=0.88). Amino acid concentrations (μmol/L) are shown in Mean (+/- SD) Z-scores compared to reference values are shown in Associations between amino acids and degree of stunting, wasting & WBFFM by linear regression adjusted for age & sex are shown in

271. Marealle A, Makani J, Prentice A (et al). "Systemic Nitric Oxide (NO) Production is increased in Children with Sickle Cell Disease (SCD) Receiving Fortified Supplementary Food." ***The FASEB Journal*** **. 2015; 29(1) 276.**

Background: Low bioavailable NO is implicated in the path physiology of SCD. Within a clinical trial of a daily ready-to-use supplementary food (RUSF) fortified with arginine (ARG, 0.2g/kg/d), the substrate of endothelial NO synthase, and coralline (CITR, 0.1g/kg/d) *vs*. non fortified RUSF we conducted a nested feasibility study of systemic NO production. **Methods:** Children (N=29, 70% male, 9-11 years) with SCD underwent a modified Oral Nitrate Test (ONT) with reduced fasting time to measure the decay in serial saliva samples of an oral dose of labelled nitrate ($Na^{15}NO_3$) by GC/MS [figure 1] (Siervo *et al*. 2011). Both groups received intervention for 12 weeks before the ONT and a further 5 weeks before plasma amino acids (Biochrom 30) and NO mediated endothelial function were assessed by flow mediated dilatation (FMD_{max}). Data were analysed using Wilcoxan ranksum or signrank tests. **Results:** The intervention groups were similar for age and weight. NO production (μmol/kg/hr) was not associated with age or sex. Results by intervention group and for both intervention groups combined are presented in [figure 2]. No associations between NO production and amino acid

concentrations or endothelial function (FMD_{max}) were observed. **Conclusions:** This method is feasible in young children in a low resource setting. NO production in malnourished children with SCD can be increased by protein energy supplementation and may be increased further with additional arginine and coralline.

272. **Martin DL, Wiegand R, Goodhew B, Lammie P, Black CM, West S, Gaydos CA, Dize L, Mkocha H, Kasubi M, Gambhir M. Serological measures of trachoma transmission intensity. *Scientific reports*. 2015; 5.**

Ocular infection with Chlamydia trachoma is can lead to trachoma, a leading infectious cause of blindness. Trachoma is targeted for elimination by 2020. Clinical grading for ocular disease is currently used for evaluating trachoma elimination programs, but serological surveillance can be a sensitive measure of disease transmission and provide a more objective testing strategy than clinical grading. We calculated the basic reproduction number from serological data in settings with high, medium, and low disease transmission based on clinical disease. The data showed a striking relationship between age seroprevalence and clinical data, demonstrating the proof-of-principle that age seroprevalence predicts transmission rates and therefore could be used as an indicator of decreased transmission of ocular trachoma.Trachoma is a neglected tropical disease caused by repeated ocular infection with the bacterium Chlamydia trachomatis (Ct). Active disease, defined as trachomatous inflammation–follicular (TF) or trachomatous inflammation–intense (TI), is self-limiting, but repeated infections can lead to pathology in the form of scarring (TS); trichiasis (TT), distinguishable by turned-in eyelashes rubbing against the globe of the eye; and irreversible blindness caused by corneal opacity (CO)1. Global efforts to eliminate trachoma as a public health problem by the year 2020 are based on the SAFE strategy: surgery for treatment of trichiasis, mass drug administration of antibiotics, and promotion of facial cleanliness and environmental improvement.As elimination efforts proceed, defining programmatic endpoints becomes a priority. We have recently begun examining the utility of serological tests for post-endemic surveillance of trachoma elimination programs2. Antibody responses to the Ct antigens pgp3 and CT694 show high sensitivity and specificity for Ct infection2. A large percentage of children living in trachoma-endemic communities have detectable antibody responses but exhibit no clinical signs and lack bacterial nucleic acid in the conjunctiva,

suggesting that these responses are indicators of historical rather than active infection2. No seroreversion was observed in seropositive individuals examined six months after drug treatment, although statistically significant decreases in antibody levels to pgp3 and CT694 were observed in younger age groups3.Post-endemic testing has shown very low seropositivity in young children in the absence of infection4 (West et al., submitted). Program end-points are currently set at <5% TF in 1–9 year-olds, operating under the assumption that low enough levels of ocular trachoma transmission will not result in downstream blindness. Since MDA will not uniformly result in zero transmission in districts, serosurveillance will only be useful to programs if there is a clear understanding of how seroprevalence relates to currently used indicators of trachoma. To this end, we evaluated age seroprevalence in communities described as hyperendemic, mesoendemic, or hypoendemic for trachoma based on TF and rates of ocular infection, and estimated the basic reproduction number for each scenario.

273. **Martins A, Carneiro LC, Castro, R. Progress in mass and clonal selection of grapevine varieties in Portugal.*VITIS-Journal of Grapevine Research*. 2015; *29*(485).**

Since 1978 we have developed methods for mass and clonal selection of grapevine well adapted to the conditions of Portuguese viticulture. The most remarkable innovation of this methodology is the establishment of large experimental populations of clones in which good estimates of yield heritability and genetic gain can be obtained. The aim of the present paper is to clarify some methodological aspects such as (1) the ideal composition and structure of the experimental populations of clones and (2) the application of this methodology to a large number of Portuguese varieties, in order to maximize the rate of yield improvement. At present we can point out the following results:

274. **Mashasi I. Social - Economic Factors Affecting Malaria Preventive Initiatives in rural Communities Tanzania: A Case Study of Bagamoyo District in Tanzania. *3rd MUHAS Scientific Conference,* 2015.**

Background: Malaria has been identified as a threat of human health in Tanzania and in other African countries. Tanzania Demographic Survey Report of 2010 shows that about 93 per cent of the population in Tanzania is at risk of being infected with malaria. Several

initiatives have been taking place trying to reduce malaria burden and yet there are multiple factors, which continue to slow down malaria prevention and control programs; factors related to environmental, political, and socio-economic determinants. **Aim:** The study attempted to look at socio-economic factors, which impede the success of malaria prevention programs/initiatives at the community and household level. The results might help stakeholders to set strategies, which will facilitate malaria reduction by focusing the family level. **Methods:** This study used both qualitative and qualitative methods of data collection. A total of 100 participants were involved in which 10 in-depth interviews, 2 Focus group, and 80 questionnaires were administered with head of heads of household. **Results**: Findings revealed that there are number of socio-economic factors that malaria interventions might not pay attention on them but they might be contributing to the spread of malaria in the community. The study discovered the situation of having poor housing facilities, irregular use of bed nets, poor sleeping habits, low household incomes; unaffordable bed nets, participation in nocturnal social activities such as traditional dance festivals, the presence of uncovered water tanks and heaps of domestic appliances in dark corners all contributed to spread of malaria in the community. **Conclusion:** The community needs to be empowered and informed on the persisting behaviors that lead to malaria spread.

275. **Mashili F, Lutale J , Njelekela M, Ramaiya K. Effects of leisure time physical activity on metabolic profile in adult city- dwellers with overweight, obesity or type 2 diabetes in Tanzania**. ***3rd MUHAS Scientific Conference, 2015.***

Background: The proportion of working adults with sedentary occupations in Sub-Saharan Africa has considerably increased. Leisure-time physical activity (LTPA) could be an alternative for the control of inactivity related illnesses. **Aim:** To investigate the effects of LTPA on the metabolic profile in overweight, obese and T2D adults, residents of Dar es salaam city, in Tanzania. **Methods:** The relationship between physical activity and metabolic variables was assessed in 400 lean, overweight, obese and T2D subjects. To determine the effects of increased LTPA on anthropometric and metabolic variables, 230 subjects (100 overweight, 80 obese and 50 newly diagnosed T2D patients) were instructed to participate in LTPA for a period of six weeks. Participants maintained activity diaries. Dietary habits were unaltered. Anthropometric variables, resting heart

rate, blood pressure, clinical chemistry, maximum oxygen uptake and self-reported physical activity (questionnaire) were assessed at the time of inclusion and after six weeks. **Results:** High to moderate occupation-related physical activity, were significantly more frequent in lean (26%) compared to overweight (9%), obese (3%), and T2DM (4%) subjects at baseline ($p<0.001$). In general, fewer (5%) participants engaged in moderate to high LTPA before the intervention. LTPA was significantly associated with High Density Lipoprotein (HDL) cholesterol, systolic BP, and resting heart rate in obese and T2D subjects. Body composition, HDL-cholesterol, fasting glucose levels, blood pressure and resting heart rate improved significantly in obese and T2DM subjects after six weeks participation in LTPA.

276. **Masika MG. The effect of integrated nursing process on the outcome of care of children admitted with pneumonia in Dar es salaam: a quasi experimental study for nurses. Master of MMed (Radiology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Nursing process is a framework widely accepted and suggested as a scientific method to guide procedures and qualify nursing care. Only few evidence globally, reported reduction in mortality and/or morbidity among patients as a result of integration of nursing process in the care of patients in comparison to non-use of the nursing process. Pneumonia, a leading killer of children globally with higher spikes in Tanzania, has been used to evaluate the effectiveness of integrating the framework in the care, and to quantify improvements in the caring processes, and patient outcomes. **Objectives:** Using quasi experimental study we aimed at assessing the effect of integrating nursing process to the pattern of nursing care, patient outcomes and length of hospital stay of children admitted with pneumonia at Temeke and Amana Regional Referral hospitals in Dar es Salaam. **Methodology:** A quasi experimental study using 147 and 180 children admitted with pneumonia at Amana regional referral hospital (intervention) and Temeke regional referral hospital Dar es Salaam (control) respectively was conducted. Nurses working in the paediatric wards of the intervention arm received a necessary on-job refresher training in order to integrate nursing process in the care of children with pneumonia. The control hospital continued to provide standard care. An intention to treat analysis approach was performed to ascertain the effect of the

intervention. **Findings:** Integration of nursing process yielded a strong positive correlation with the pattern of care with a coefficient of determination (R2) 95.3% suggesting that the observed high scores of pattern of care in the treatment group was associated with training and integration of nursing process (intervention). There was no effect in integration of nursing process mortality of children. However, it was significantly found that Patients in the intervention group had the likely of staying 0.65 day less than those in the control group, (β= -0.69, 95% CI = -1.00, -0.38).Recommendation: The researchers recommend that mechanisms are made to ensure that nurses working in the paediatric wards use nursing process as they provide care to children.

277. **Masota N, Tibalinda P, Sempombe J, Kaale E, Layloff T. Development and Validation of an HPTLC Densitometric Method for Assay of Griseofulvin Tablets.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Griseofulvin is an oral active antifungal antibiotic derived from the mold *Penicilliumgriseofulvum* that is primarily used to treat dermatophyte infections in humans and animals. Analysis of Finished Pharmaceutical Products (FPP) is vital to ensure manufacturing of good quality products.HPTLC is a simple, effective and affordable technique used in analysis of various compounds.Currently there is no a validated HPTLC method for quantitative and qualitative analysis of Griseofulvin tablets which has been developed. **Aim:** To develop and validate an HPTLC densitometric method for assay of Griseofulvin in tablets formulation. **Methods:** Instrumentation involved the HPTLC applicator, trough chamber, TLCscanner, dataanalysissoftware, syringe and Silica gel 60 F254 pre-coated TLC plates. Choice of mobile phase was done by observation of the polarity of different reagents in comparison to Griseofulvin's solubility. Working solutions were applied on silica gel plates using an automated syringe. The spotted plates were developed on flat bottom chamber; air dried and scanned at 299nm, validation was done as per ICH guidelines. **Results:** The optimal mobile phase system for Griseofulvin was Diethylether:Toluene (4:1) v/v, the saturation time was 25minutes. There were no interference from the exipients or solvents, for repeatability and intermediate precision the RSD values were 1.43 and 1.58 respectively, for Linearity tests, the polynomial R^2 values were 0.9915, 0.9801 and 0.9842 on three

consecutive days, accuracy values tested at 80%, 100% and 120% concentrations were between 98.11% -102.66%. **Conclusion:** The developed HPTLC densitometric method for Griseofulvin was simple, reproducible, accurate, and cost effective and environmentallyfriendlier. The methodwas validated and is suitable for use in qualitative and quantitative analysis as well as screening of Griseofulvintablets.

278. **Massawa T, Niima D, Swaleh A, Munseri P, Bakari M, Mhalu F. Experiences in Recruiting Youths into TaMoVac-01 HIV Vaccine Trial at MUHAS. *3rd MUHAS Scientific Conference, 2015.***

Background: Following successful conduct of the HIVIS-03 HIV vaccine trial conducted between February 2007 and February 2010, which recruited Police Officers, a second phase I/II HIV TaMoVac-01 vaccine trial recruited participants from the Police force, Prisons force as well as youths at the IDC bearing in mind that youths are most hit by HIV. **Methods:** Sensitization meetings were conducted at the IDC youths clinic. Subsequently Prescreening workshops were conducted at the clinical site at MNH. Participants who showed interest in volunteering in the trial were asked to come for screening at the clinic located at Muhimbili National Hospital. **Results:** A total of 200 youth attended the briefing at IDC sensitization meetings. Of these, 110 (55%) attended the pre-screening workshops. Of these, 69 (63%) were screened at the clinic. Eventually 25 youths, of whom females were 20 (80%), were enrolled. The median age was 21 years, range 19-24 years. Recruitment of these youths spanned over 12 months.Challenges encountered included the initial inability for youths to make independent decisions, which later improved after the parents/guardians informed. While in the trial, 4/25 youths relocated in search of jobs which resulted into additional costs for the trial, and 2/20 female volunteers became pregnant during the study period. **Conclusion:** Recruitment of youths in the HIV vaccine trial improved after the parents/guardians were well informed. Provision of reproductive health services as well as contraceptives is advised.

279. **Matata FL. Prevalence of malaria, geohelminths and anaemia among school children in Muheza District after Wide Scaling up of Interventions. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences*.**

Background: Intestinal helminth and malaria infection continue to be an important public health problem in Sub-Saharan Africa. A quarter of African school children are concurrently infected with P. falciparum and geohelminth. The most important consequence of these co-infections in human is anaemia. **Objective:** To determine prevalence of malaria, geohelminths and anaemia and associated factors among school children at Ngomeni division in Muheza District after wide scaling up of interventions. **Methodology:** A cross sectional study was conducted in Muheza District in 2013. Ngomeni division was selected purposively. A stratified random sampling and simple random sampling methods were used to obtain schools and participants respectively. Questionnaire containing demographic and risk factors information was administered to each study respondent. Blood sample was collected to determine malaria parasitaemia and Haemoglobin (Hb) levels. The Hb concentration was determined using Haemocue machine. Malaria parasites were tested by using mRDT and microscopy. Stool specimens were examined using the Kato-Katz technique. Bivariate and multivariate analysis using logistic regression was done to obtain associations between risk factors with malaria as well as geohelminth. **Results:** A total of 400 respondents were recruited in the study. The mean age was 10.8±2.2 SD years. The prevalence of malaria, geohelminthiasis, co-infections (malaria geohelminth) and anaemia was (21.5%) 82/381, (6.7%) 26/387 (1.8%) 7/381 and (39.1%) 149/381 respectively. Those respondents who tested positive for malaria were more likely not to have slept under ITN (AOR= 4, CI=2.24-8.51) while geohelminth infections were independently associated with eating unwashed raw food (AOR=2.9, C.I=1.9-9.2), eating food before washing hands (AOR=5.81, CI=1.92-17.54); co-infections were similarly shown to aggravate low mean Hb =9.7g/dl). **Conclusions:** Malaria and Anaemia has the main public health problem in the study area; STH prevalence has gone down after MDAs and co- infection was low compared to previous studies; the co infection was shown to aggravate anaemia among school children. Recommendations: Further studies are required to examine the determinants of nonuse of the malaria and STHs interventions among school children.

280. **Matimbwi T, Mangi E. Effectiveness of workplace HIV/AIDS policy and programme interventions in commercial plantations in Iringa region. *3rd MUHAS Scientific Conference,* 2015.**

Background: Since the inception of HIV/AIDS policy and programme interventions at workplaces in both public and private sector institutions; little is known about their effectiveness. **Objective:** This study aimed at assessing and documenting the effectiveness of workplace HIV/AIDS policy and programmes interventions in commercial plantations in Iringa region. **Methods:** A descriptive cross sectional study was conducted in five commercial plantations. Interviews were conducted with five representatives from companies' management and questionnaires were administered to 273 employees. Data analysis was done using SPSS version 17 and thematic analysis of transcripts. **Results:** About 87.2% of respondents were aware of the existence of company policy, and 77.7% knew its content. About 51.2% of respondents knew about prevention services, HIV education 37.2%, 7.4% HIV related stigma and discrimination and 4.2% treatment services. About 76.2% of respondents reported on condom promotion and availability at workplace and 63.0% used condoms with non-regular partners. 70.7% of respondents used condoms in the six months prior to the study. Majority (82.8%) reported to use onsite VCT clinic while 17.2% opted offsite VCT. High proportion (80.2%) said that workplace HIV activities contributed to the willingness to seek VCT services. The study reveals that 76.2% and 76.6% were satisfied with the HIV prevention and treatment services respectively. **Conclusion:** HIV/AIDS workplace programme interventions are effective and should be scaled-up. Increased awareness among employees on company HIV policies, interventions and services provided at the workplace hold the potential for improved access and utilization of services.

281. **Mattei J, Malik V, Wedick NM, Hu FB, Spiegelman D, Willett WC, Campos H. Reducing the global burden of type 2 diabetes by improving the quality of staple foods: The Global Nutrition and Epidemiologic Transition Initiative. *Globalization and health*. 2015; 11(1):1.**

Background: The prevalence of type 2 diabetes has been reaching epidemic proportions across the globe, affecting low/middle-income and developed countries. Two main contributors to this burden are the reduction in mortality from infectious conditions and concomitant negative changes in lifestyles, including diet. We aimed to depict the current state of type 2 diabetes worldwide in light of the undergoing epidemiologic and nutrition transition, and to posit that a key factor in the nutrition transition has been the shift in the

type and processing of staple foods, from less processed traditional foods to highly refined and processed carbohydrate sources. **Discussion:** We showed data from 11 countries participating in the Global Nutrition and Epidemiologic Transition Initiative, a collaborative effort across countries at various stages of the nutrition-epidemiologic transition whose mission is to reduce diabetes by improving the quality of staple foods through culturally-appropriate interventions. We depicted the epidemiologic transition using demographic and mortality data from the World Health Organization, and the nutrition transition using data from the Food and Agriculture Organization food balance sheets. Main staple foods (maize, rice, wheat, pulses, and roots) differed by country, with most countries undergoing a shift in principal contributors to energy consumption from grains in the past 50 years. Notably, rice and wheat products accounted for over half of the contribution to energy consumption from staple grains, while the trends for contribution from roots and pulses generally decreased in most countries. Global Nutrition and Epidemiologic Transition Initiative countries with pilot data have documented key barriers and motivators to increase intake of high-quality staple foods.

282. **Mawala KS. The prevalence of noise induced hearing loss among Urafiki textile industry workers. Master of MMed (Otorhinolaryngology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Introduction: Noise Induced Hearing Loss is a gradual irreversible hearing loss that results from chronic loud noise exposure (sound intensity above 85 dBA), may develop after many years of exposure. The degree of NIHL is determined by intensity, duration of exposure, spectral characteristics of the noise, and individual susceptibility. NIHL burdens are very common among industry workers in developing countries (21%) as compared to developed countries (16%), may be because most of industries in developing countries produce sound intensity above 85 dBA as confirmed by a study done a decade ago in Tanzania. NIHL can totally be prevented by protecting the ear from chronic loud noise exposure. **Aim of the study:** To determine the current magnitude of NIHL among Urafiki textile industry workers. **Methodology:** The study was industry based descriptive cross sectional study. Ethical clearance was obtained from Research Committee-MUHAS. Workers eligible for the study were enrolled. Data collection was done from May 2014 to December 2014 by using a structured questionnaire, sound

intensity and hearing assessment was measured by using portable sound level meter and portable audiometer respectively. Data analysis was done by using SPSS software. Categorical variables were summarized into frequencies, Chi –square test (X2) was carried out and significant level $p<0.05$ was used to draw out conclusion by the help of the statistician. **Results:** The study was conducted in 265 industrial workers, 161 (60.8%) were male and 104 (39.2%) were female, majority 114 (43%) were in the age group of 22 to 35 years. Out of 265 industrial workers, 155 (58.5%) had NIHL. Males with NIHL were 101 (62.7%) and females were 54 (51.9%), the commonest age group with NIHL was more than 49 year and those with working experience of more than 35 years 88% had NIHL while those with working experience of over 5 to 10 years only 38.5 % had NIHL. The common symptom reported was hearing loss in 24.9%. **Conclusion:** The overall prevalence of NIHL was higher in industry workers. The prevalence was higher in male, aged and prolonged exposed workers.

283. **Mayumi O, Kazuyo O, Sebalda L. "Customs and practices during pregnancy, childbirth, and the postpartum period in the Kilimanjaro area, Tanzania." 2015; (27): 85-90.**

Introduction: Here, we report the traditions, customs, and beliefs of rural women during pregnancy, childbirth, and the postpartum period in rural Tanzania, and discuss how they compromise between traditional and modern perceptions of maternity care and experiences. **Methods:** A focus group interview with nine women who have children less than 5 years old was conducted by a midwife researcher（ one of the authors） in Rombo, a village in the Kilimanjaro region, in Tanzania, in December 2009. The interview was translated from the local language into English and transcribed. The data were assessed by describing and categorizing as pregnancy, childbirth, after childbirth, and feeding of the baby. **Results:** The women recognized the importance of institutional delivery, but also appreciated cultural practices related to childbirth. Goats, bananas, local beer made from bananas, and kanga（ Tanzanian pareu or wraparound skirt） were important items not only for pregnancy and childbirth, but also for daily life in the study area. They integrated medical approaches by health professionals and traditional approaches by the family in childbirth. **Conclusions:** A transition gap regarding the

modern and traditional practices was not clearly observed as in urban areas in the present study area, but it is possible that the same conditions will arise in this area in future. It is necessary to take traditional customs and practices into consideration to improve women's satisfaction regarding childbirth and delivery

284. **Mbawala H, Machibya FM, Kahabuka FK.Assorted Errands in Prevention of Children's Oral Diseases and Conditions. 2015.**

Introduction: Children are young human beings; they are vulnerable to various ailments including oral diseases and conditions. In order to prevent the various oral diseases and conditions inchildren, all people responsible in looking after the children have a role to play so as to protect them from acquiring oral diseases or receive appropriate prompt management. This chapter presents responsibilities of various stakeholders in prevention of children's oral diseases and conditions. The impact of oral diseases in children's general health, growth and development is presented. The various oral diseases and conditions and the significance of their prevention is described. Finally, responsible stake holders and their various errands are elucidated. **Prevention of children's oral diseases and conditions:** The word prevent comes from the Latin "prevents", which means anticipate or hinder. Prevention literally implies the act of putting a stop to something from happening. It refers to measures taken to make the occurrence of something from none existence or not progressing to a worse situation [1]. Subsequently, prevention of diseases is actions aimed at eradicating, eliminating or minimizing the impact of disease and disability, or if none of these are feasible, retarding the progress of the disease and disability. Prevention of oral diseases and conditions therefore means to put a stop or to avoid the oral diseases and or conditions from occurring, control the already existing condition or disease not to progress further or take charge such that the impact of the condition or diseases is handled to improve quality of life of the affected individual. Disease preventive strategies are acting on the chain of disease causation where individuals who are at risk or have higher possibilities of contracting the disease or having the

285. **Mbelwa S, Malima K. The undiagnosed patient: Psychiatric evaluation among children and adolescents within Juvenile Systems, Tanzania. *3rd MUHAS Scientific Conference*, 2015.**

Background: The recently observed rising number of children and adolescents admitted in the Dar es Salaam juvenile homes in the last five years has raised concern to mental health and psychiatric health professional and related agencies. The establishment of brief psychiatric evaluation programmes in such systems may offer an invaluable opportunity for detection, diagnosis and early treatment that would be fundamental to avoid the severe sequel of mental illness in this population.**Aim:** To determine the prevalence of psychiatric disorders among children and adolescents detained in the Dar es Salaam juvenile home and determine future needs of such services.**Methods:** The study applied a mixed methodology design to estimate prevalence of mental disorders using a validated strength and difficulty questionnaire (SDQ), in-depth interviews and focus group discussions with care givers and used DSM IV TR for clinical confirmation. **Results:** More than a third (34.3%, n= 37) of 108 children and adolescents had mental dysfunction at assessment associated with attention deficit hyperactivity disorder and aberrant behaviour. History of unstable family situations such as parental death (58%, n=63) and divorce (44%) predominates in this group. Other conditions included drug and alcohol use disorders (14%; n= 8), sexual disorders, depression and brief psychotic reaction.**Conclusion**: The undiagnosed psychiatric disorders among the detained children and adolescents may account for their aberrant behaviours thus provision of a fair judgment of their delinquency, psychiatric evaluation should be mandatory. The early detection of mental disorders offers better prognosis and rehabilitation for those affected and should be initiated as a mental health promotion initiative. The SDQ tool can effectively be used by the juvenile system as one of the preliminary assessment tool.

286. **Mbiliny S. The influence of physical healthcare environment and patients provider interaction on patients perceived satisfaction with services amongst patients seeking health services in Public Hospitals In Dar Es Salaam Tanzania. Masters of Public Health *Dissertation 2015. Muhimbili University of Health and Allied Sciences*.**

Background: A Physical environment in healthcare facilities is the physical settings and organizational culture that supports patients and families through the stresses imposed by illness, hospitalization, medical visits, and the process of providing and receiving health's services and consequently patients satisfaction A good Patients- Provider Interaction has an influence not only to patient satisfaction but also to patient outcomes such as emotional states, lower blood sugar and improved blood pressure. **Objective:** The main objective of this study was to assess the influence of physical Healthcare environment and patient-provider interaction on patient's satisfaction with healthcare services amongst patients seeking health services in public health facilities in Dar Es Salaam Tanzania **Methodology:** An explorative cross-sectional study was conducted in three regional referral hospitals namely Mwananyamala, Temeke and Ilala in Dar es salaam Tanzania. Random sampling was used to get study sample where systematic sampling was further used to select Outpatients (n=280) and In-patients (n=120). Closed-end questionnaire was used for data collection for both out-patients (exit interviews) and inpatients. Data was then analyzed using SPSS version 21.Furthermore a five–point Likert's scale was used to measure patient's satisfaction as well as physical environment and patients-provider interaction. **Results:** Overall patients' satisfaction with the level of privacy in OPD was high with an overall mean score of 2.7, as per Likert's scale there was also a significant relationship between level of privacy in OPD (p-0.00), However in IPD patients were not satisfied with the level of privacy in the wards with overall mean score of 3.11.Regarding OPD waiting areas most of the of patients indicated to be satisfied with the conditions in the waiting area with overall mean score of 2.97.However there was no significant relationship between conditions of waiting area and patients satisfaction with health services (P-Value 0.19).As far as Patients-Provider interaction is concerned , OPD and IPD showed high level of satisfaction with the way hospital staff treated them with overall mean score of 2.34 and 2.42, respectively. IPD patients were satisfied with level noise in the inpatients wards with overall mean of 2.38 .For smell/Odor OPD patients were not satisfied with the cleanness of the hospital while IPD patients were was satisfied with overall mean score of 3.37 and 2.29 respectively. **Conclusion and recommendation:** Physical environment of healthcare facilities and Patient-Provider interaction in health facilities have an influence in patient's perceived satisfaction with

services provided. The area of physical healthcare environment and patients satisfaction with quality of care need further be investigation in both public and private health facilities in Tanzania.

287. **Mbugi E, Katale B, Keyyu J, Kendall S, Good L, Kibiki G, Kazwala R, Dockrell H, Michel A, Streicher E, Warren R, Matee M, van Helden P. Diverse predominance ofMycobacterium tuberculosisstrain families for human TB isolates fromthe Serengeti Ecosystem of Tanzania.** ***3rd MUHAS Scientific Conference, 2015***.

Background: Tuberculosis has been a threat to human and animal health for centuries since its discovery. Monitoring its etiology, transmission, spread and prevailing strains in both humans and animals at their interface bears a critical importance. **Aims:** To evaluatethe status of tuberculosis transmission using molecular markers, basing onDNA isolates from human sputum samples and animal tissue cultures to establish TB strain profile at human-livestock-wildlife interface in the Serengeti ecosystem.**Methods:** This study was part of the larger cross-sectional survey that evaluated Tuberculosis infection in both humans and animals (livestock and wildlife). The study entailed DNA isolates from sputum and tissue cultures from smear-positive pulmonary TB patients and Tb suspected animal tissues from both livestock (cattle) and wildlife (buffaloes, lions and hynas). Spacer oligonucleotide typing (spoligotyping) was used to genotype both the M. Tuberculosis complex and M. bovis isolates in an attempt to establish the circulating lineages.**Results:** Of all 214 human TB DNA genotyped through spoligotyping, 56 (26.2%) were T family (an ill-defined family), 55 (25.7%) belonged to Central Asian (CAS) family, 40 (18.7%) belonged to the Latin American Mediterranean (LAM) family, 35 (16.4%) East-African Indian (EAI) family, while 8 (3.7%) belonged to Beijing family. The minority group that included Haarlem, X and S accounted for 8 (3.7%). The latter, together with the yet unidentified strain families altogether (8+12) accounted for 20 (9.3%) of all spoligotypes. **Conclusions:** This study provides a reflection that, in the Serengeti ecosystem, among M. tuberculosis complex strains; only few successful families predominantly infect humans with T, CAS, LAM and EAI families being abundant in the area. It also implies that a diverse of strain families rather than single dominant strain family prevailin this ecosystem with contribution of Beijing family being minor.

288. **Mbugi EV, Katale BZ, Siame KK, Keyyu JD, Kendall SL, Dockrell HM, Streicher EM, Michel AL, Rweyemamu MM, Warren RM, Matee MI. Genetic diversity of Mycobacterium tuberculosis isolated from tuberculosis patients in the Serengeti ecosystem in Tanzania. *Tuberculosis*. 2015; 95(2):170-8.**

This study was part of a larger cross-sectional survey that was evaluating tuberculosis (TB) infection in humans, livestock and wildlife in the Serengeti ecosystem in Tanzania. The study aimed at evaluating the genetic diversity of Mycobacterium tuberculosis isolates from TB patients attending health facilities in the Serengeti ecosystem. DNA was extracted from 214 sputum cultures obtained from consecutively enrolled newly diagnosed untreated TB patients aged ≥18 years. Spacer oligonucleotide typing (spoligotyping) and Mycobacterium Interspersed Repetitive Units and Variable Number Tandem Repeat (MIRU-VNTR) were used to genotype M. tuberculosis to establish the circulating lineages. Of the214 M. tuberculosis isolates genotyped, 55 (25.7%) belonged to the Central Asian (CAS) family, 52 (24.3%) were T family (an ill-defined family), 38 (17.8%) belonged to the Latin American Mediterranean (LAM) family, 25 (11.7%) to the East-African Indian (EAI) family, 25 (11.7%) comprised of different unassigned ('Serengeti') strain families, while 8 (3.7%) belonged to the Beijing family. A minority group that included Haarlem, X, U and S altogether accounted for 11 (5.2%) of all genotypes. MIRU-VNTR typing produced diverse patterns within and between families indicative of unlinked transmission chains. We conclude that, in the Serengeti ecosystem only a few successful families predominate namely CAS, T, LAM and EAI families. Other types found in lower prevalence are Beijing, Haarlem, X, S and MANU. The Haarlem, EAI_Somalia, LAM3 and S/convergent and X2 subfamilies found in this study were not reported in previous studies in Tanzania.

289. **Mbunda T, Guerrino C, Bakari M, Tarimo E, Sandstrom E, Kulane A. Contraceptive practices in youths willing to participate in HIV vaccine trial in Dar es Salaam. *3rd MUHAS Scientific Conference, 2015*.**

Background: Youths are disproportionately affected with HIV/AIDS, bearing half of new infections. Availability of an effective HIV vaccine is the cornerstone towards ending the epidemic. It is imperative to include youths in preventive HIV vaccine trials

because they are primary beneficiaries of HIV vaccine should an effective one becomes available. Participation in HIV vaccine trials however necessitates participants not to become pregnant or impregnate women. Therefore it is important to study dynamics of contraceptive practices among young adults. **Aim**: To determine contraceptive practices among youths willing to participate in HIV vaccine trial. **Methods**: We conducted a cross sectional survey using structured questionnaires to four hundred and fifty youths who attended a youth's clinic at Infectious Diseases Clinic in February to September 2012. **Results**: Fifty one percent of the participants expressed willingness to participate (WTP) in HIV vaccine trial. Seventy three percent of those expressing WTP knew contraception was for spacing children; all of them mentioned at least one contraceptive method; ninety percent knew contraceptives were available at a health facility. However only forty five percent had ever used contraceptives, with only forty nine percent reporting to have used contraceptives at the time of last sexual intercourse. The reasons for not using contraceptives were not being married; lack of knowledge on contraceptives; religious prohibitions; and having infrequent, unplanned sexual intercourse. **Conclusions**: Despite the fact youths are well informed and knew where to get contraceptives, their practices lag behind their knowledge. It is essential to address impediments pertaining to contraceptive use in the Tanzanian context for the youths to be fully involved in HIV vaccine trials.

290. **Mbuya GJ. Knowledge and practice on infection prevention among health attendants in karatu district, Arusha. Master of Public Health, *Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

Background: In Tanzania, health attendants do handle hospital waste and sometimes assist nurses doing basic services such as bed making, injection, and dressing of wound. No study, has investigated their level of knowledge and practices on infection prevention. Aim of the study: The aim of the study was to assess knowledge and practice on infection prevention among health attendants in Karatu district, Arusha Region. **Methodology:** A cross-sectional study was conducted to find out the knowledge and practices on infection prevention among health attendants in Karatu District. A total of 109 health attendants were recruited from one hospital and five health centers using random sampling technique to answer the questionnaire on knowledge and practice on infection prevention

while 12 health attendants were selected conveniently to participate observation study. Purposive sampling method was used to select 6 managers who participated an in depth interview. Quantitative data was entered and validated using SPSS version 15 software. Chi square test was used to assess the relationship between categorical data and the value of P< 0.05 at 95% CI was considered statistically significance. Qualitative data was analyzed by using thematic analysis approach. **Results:** Out of 109 participants 85(78%) were female while 24(22) were male. Majority of health attendants were knowledgeable on infection prevention 89% had high knowledge while 11% had low knowledge. Practice was assessed by questionnaire and checklist. All participants answered the questionnaire about practice and majority of them had good practice 98(89.9%) on infection prevention. For observation among 12 observed participants only 1(8.3%) had good practice on infection prevention and majority of the participants were not practicing the assessed items? **Conclusion:** Majority of the studied health attendants had good knowledge on infection prevention although it is not reflected in their sanitation practices, suggesting high risk of transmission of infections within the health facilities. **Recommendation:** The government through the Ministry of Health and Social Welfare should plan seminars and trainings for health attendants and enough budgets in the facilities should be indicated to ensure adequate flow of equipment and other supplies. Also close supportive supervision should be planned to make sure infection prevention and control is practiced as stated in the guideline.

291. McCormick NM. (et al). "Implementation and Operational Research: Risk Factors of Loss to Follow-up among HIV-Positive Pediatric Patients in Dar es Salaam, Tanzania." ***JAIDS Journal of Acquired Immune Deficiency Syndromes. 2015;*** **70(3): e73-e83.**

Objective: To identify risk factors for loss to follow-up (LTFU) in an HIV-infected pediatric population in Dar es Salaam, Tanzania, between 2004 and 2011. Design: Longitudinal analysis of 6236 HIV-infected children. Methods: We conducted a prospective cohort study of 6236 pediatric patients enrolled in care and treatment in Dar es Salaam from October 2004 to September 2011. LTFU was defined as missing a clinic visit for >90 days for patients on ART and for >180 days for patients in care and monitoring. The relationship of baseline and time-varying characteristics to the risk of

LTFU was examined using a Cox proportional hazards model. **Results:** A total of 2130 children (34%) were LTFU over a median follow-up of 16.7 months (interquartile range, 3.4–36.9). Factors independently associated with a higher risk of LTFU were age ≤2 years (relative risk [RR] = 1.59, 95% CI: 1.40 to 1.80), diarrhea at enrollment (RR = 1.20, 95% CI: 1.03 to 1.41), a low mid-upper arm circumference for age (RR = 1.20, CI: 1.05 to 1.37), eating protein-rich foods ≤3 times a week (RR = 1.39, 95% CI: 1.05 to 1.90), taking cotrimoxazole (RR = 1.39, 95% CI: 1.06 to 1.81), initiating onto antiretroviral (RR = 1.37, 95% CI: 1.17 to 1.61), receiving treatment at a hospital instead of a local facility (RR = 1.39, 95% CI: 1.06 to 1.41), and starting treatment in 2006 or later (RR = 1.10, 95% CI: 1.04 to 1.16). **Conclusions:** Health workers should be aware of pediatric patients who are at a greatest risk of LTFU, such as younger and undernourished patients, so that they can proactively counsel families about the importance of visit adherence. Findings support decentralization of HIV care to local facilities as opposed to hospitals.

292. **McDonald CM, (et al). "Daily Zinc but Not Multivitamin Supplementation Reduces Diarrhea and Upper Respiratory Infections in Tanzanian Infants: A Randomized, Double-Blind, Placebo-Controlled Clinical Trial."** ***The Journal of nutrition. 2015;*** **145(9): 2153-2160.**

Background: Although various micronutrient regimens have been shown to prevent and treat common infectious diseases in children, the effects of daily multivitamin (MV) and/or zinc supplementation have not been widely evaluated in young African infants. **Objective:** The objective was to determine whether daily supplementation of HIV-unexposed Tanzanian infants with MVs or zinc reduces the risk of infectious morbidity compared with placebo. **Methods:** In a 2 × 2 factorial, double-blind, randomized controlled trial, 2400 infants who were 6 wk of age and born to HIV-negative mothers in a low-malaria setting were randomly assigned to receive daily oral supplementation of MVs (vitamin B complex and vitamins C and E), zinc, zinc + MVs, or placebo for 18 mo. Morbidity was assessed by study nurses at monthly visits and by physicians every 3 mo and/or when the child was acutely ill. **Results:** No significant differences were found in the percentage of nurse visits during which diarrhea, cough, or any other symptom were reported throughout the previous month when receiving either zinc or MVs. However,

physician diagnoses of all types of diarrhea (RR = 0.88; 95% CI: 0.81, 0.96; *P* = 0.003), dysentery (RR = 0.84; 95% CI: 0.74, 0.95; *P* = 0.006), and acute upper respiratory infection (RR = 0.92; 95% CI: 0.88, 0.97; *P* = 0.0005) were significantly lower for infants supplemented with zinc than for those who did not receive zinc. Among the 2360 infants for whom vital status was obtained, there was a no significant increase in all-cause mortality among infants who received zinc (HR = 1.80; 95% CI: 0.98, 3.31; *P* = 0.06) compared with those who did not receive zinc. MVs did not alter the rates of any recorded physician diagnoses or mortality. Neither zinc nor MVs reduced hospitalizations or unscheduled outpatient visits. **Conclusions:** Daily zinc supplementation of Tanzanian infants beginning at the age of 6 wk may lower the burden of diarrhea and acute upper respiratory infections, but provision of MVs using the regimen in this trial did not confer additional benefit.

293. **Mchembe M, Rambau P, Chalya P, Jaka H, Koy M, Mahalu W. Endoscopic and clinicopathological patterns of esophageal cancer in Tanzania: experiences from two tertiary health institutions**. ***3rd MUHAS Scientific Conference, 2015***.

Background: Esophageal cancer is one of the most serious gastrointestinal cancer worldwide, owing to its rapid development and fatal prognoses in most cases. There is a paucity of published data regarding esophageal cancer in Tanzania and the study area in particular. This study was conducted to describe the endoscopic and clinicopathological patterns of esophageal cancer in this part of the world. The study provides baseline local data for future comparison. **Methods:** This was a retrospective study of histologically confirmed cases of esophageal cancer seen at Bugando Medical Center and Muhimbili National Hospital between March 2008 and February 2013. Data were retrieved from medical record computer database and analyzed using SPSS computer software version 17.0. **Results:** A total of 328 esophageal cancer patients were enrolled in the study, representing 25.3% of all malignant gastrointestinal tract tumors. The male to female ratio was 2.2:1. The median age of patients at presentation was 47 years. The majority of patients (86.6%) were peasants coming from the rural areas. Smoking and alcohol consumption were documented in 74.7% and 61.6% of patients respectively. Family history of esophageal cancer was reported in 4.6% of cases. The majority of patients (81.7%) presented late with advanced stage of cancer. Progressive dysphagia and weight

loss were the most common presenting symptoms occurring in all patients. The middle third esophagus (58.5%) was the most frequent anatomical site for esophageal cancer followed by lower third (27.4%) and upper third esophagus (10.4%). Squamous cell carcinoma (96.0%) was the most common histopathological type. Adenocarcinoma occurred in 13 (4.0%) patients. TNM staging was documented in only 104 (31.7%) patients. Of these, 102(98.1%) patients were diagnosed with advanced esophageal cancer (Stages III and IV). According to tumor grading, most of tumors were moderately differentiated accounting for 56.1% of cases. Distant metastasis was documented in 43.3% of patients. **Conclusion:** Esophageal cancer is not uncommon in this region and shows a trend towards a relative young age at presentation and the majority of patients present late with advanced stage. There is a need for screening of high-risk populations and detecting esophageal cancer at an early stage in order to improve chances for successful treatment and survival.

294. **Mchembe M, Rambau P, Chalya P, Jaka H, Koy M, Mahalu W. Venues, incentives and type of partner for the first anal sexual experience among men- who- have sex with men in Dar es Salaam, Tanzania.** ***3rd MUHAS Scientific Conference, 2015***.

Background: The first study on HIV among men who have sex with men (MSM) was conducted 20 years after the epidemic was first reported. The few studies now available show that there are men who have sex with other men and that the HIV rates among them is considerably higher than that of men in the general population. However, little is known about incentive for such behaviours and venues when it was first practiced. **Objectives**: The major objective of the study was to determine behavioral and biological profiles of MSM in Dar es Salaam. **Methodology:** Respondent driven sampling was used for identifying study subjects and structured interviews were used for data collection from consenting participants.**Results:** A total of 753 MSM participated in the study. Almost half (46.3%) were < 25 years old and 12.4% were above 34 years old. Most of the participants (83.2%) were single and 6.3% were married. Almost a third (29%) had children. The home of the partner was the most common venue for the first anal sexual experience (37.9%) followed by guest houses (27.8%), the home of the respondent (26.8%) and schools (6.7%). A few had sex for the first time in prison, abandoned buildings and on the beach. Initial partners involved friends (67.9%), fellow students

(9.0 %), neighbours (7.8%) and close relatives (5.7%). When asked what prompted the first anal sexual experience, most said pleasure (77.7%) and some first did it for money (11.8%)while 9.7% reported to have been raped. **Conclusion:** Homes of the partner or the respondent were the most common venue for the first anal sex among MSM. Partners were mainly friends even though fellow students, neighbors and close relatives were also involved. Pleasure was the main incentive to for the initial anal sex trial for the majority of the study subjects even though some were induced to this behavior because of money.

295. **McMahon SA, Mohan D, LeFevre AE. (, et al.) ""You should go so that others can come"; the role of facilities in determining an early departure after childbirth in Morogoro Region, Tanzania."** ***BMC pregnancy and childbirth.*** **2015; 15(1): 1.**

Background: Tanzania is among ten countries that account for a majority of the world's newborn deaths. However, Data on time-to-discharge after facility delivery, receipt of postpartum messaging by time to discharge and women'sexperiences in the time preceding discharge from a facility after childbirth are limited. **Methods**: Household survey of 1267 women who delivered in the preceding 2–14 months; in-depth interviews with 24 women, 12 husbands, and 5 community elders. **Results:** Two-thirds of women with vaginal, uncomplicated births departed within 12 h; 90 % within 24 h, and 95 % Within 48 h. Median departure times varied significantly across facilities (hospital: 23 h, health center: 10 h, dispensary:7 h, $p < 0.001$).Quantitative and qualitative data highlight the importance of type of facility and facility amenities in determining timeto-discharge. In multiple logistic regression, level of facility (hospital, health center, dispensary) was the only significantpredictor of early discharge ($p = 0.001$). However across all types of facilities a majority of women depart before 24 hranging from hospitals (54 %) to health centers (64 %) to dispensaries (74 %). Most women who experienced a deliverycomplication (56 %), gave birth by caesarean section (90 %), or gave birth to a pre-term baby (70 %) stayed longer than24 h. Reasons for early discharge include: facility practices including discharge routines and working hours and facilitybaseddiscomforts for women and those who accompany them to facilities. Provision of postpartum counseling wasinadequate regardless of time to discharge and regardless of type of facility where delivery occurred. **Conclusion:** Our quantitative and qualitative findings indicate that the level of facility care and comforts existing or

Lacking in a facility have the greatest effect on time to discharge. This suggests that individual or interpersonalcharacteristics play a limited role in deciding whether a woman would stay for shorter or longer periods.Implementation of a policy of longer stay must incorporate enhanced postpartum counseling and should be sensitiveto women's perceptions that it is safe and beneficial to leave hospitals soon after birth.

296. **Meena EJ. Factors associated with proper hand washing practices among school pupils of Kinondoni Municipality, Dar es Salaam Tanzania. Master of Public Health*, Dissertation 2015, Muhimbili University of Health and Allied Sciences.***

Background: Hands are the primary mode of transmission of many infectious diseases. Scholars have demonstrated that appropriate hand washing can effectively cut down upper respiratory infection and diarrhoea rates among children. Although hand washing has been found to be effective, its practice in primary schools remains a paradox. **Objectives:** The purpose of this study was to determine the factors influencing hand washing practices among pupils in primary schools in Kinondoni Municipality, Dar es Salaam, Tanzania. **Methodology:** A cross sectional study that was carried out in twelve public primary schools in Kinondoni district, Dar es Salaam. This study employed a two stage cluster sampling. Twelve schools were selected from which 10 pupils from standards five, six and seven in each school with age range of 10 to 15 years were selected. In addition one Head teacher and Two School Health teachers from each school were selected to participate. This made up 384 respondents with 360 pupils and 24 teachers. Questionnaires, interview schedules, and observation checklist were used as instruments for data collection. Quantitative data was coded, entered and analysed by using STATA computer package. Qualitative data were categorised manually and content analysis was done in line with the research objectives. Regression analysis was used to ascertain the factors influencing hand washing practices. **Results:** The findings indicate that 356 (97.5%) of the respondents had knowledge on importance of hand washing. Results revealed that (66%) learned the importance of hand washing for the first time at home, while (31%) learned the importance of hand washing practice at school. Majority 341 (93.4%) of the pupils reported commonest source of water to be tap water compared to 24 (6.6%) who used other sources of water. One hundred and sixty eight (46%) pupils reported washing their hands at crucial times like after visiting the toilets and before

eating. Moreover, having health clubs, proper eating places for instance cafeteria and the presence of hand washing facilities had significant influence on the practice of hand washing among pupils. **Conclusion:** Knowledge on the importance of hand washing among pupils had an influence on hand washing practices, Furthermore having facilities like proper eating place and hand washing facilities for different classes improved hand washing practices.

297. **Mega JL, Tabassome S. "Pharmacology of antithrombotic drugs: an assessment of oral antiplatelet and anticoagulant treatments.*" The Lancet 386.9990.* 2015; 281-291.**

Antithrombotic drugs, which include antiplatelet and anticoagulant therapies, prevent and treat many cardiovascular disorders and, as such, are some of the most commonly prescribed drugs worldwide. The first drugs designed to inhibit platelets or coagulation factors, such as the antiplatelet clopidogrel and the anticoagulant warfarin, significantly reduced the risk of thrombotic events at the cost of increased bleeding in patients. However, both clopidogrel and warfarin have some pharmacological limitations **including**interpatient variability in antithrombotic effects in part due to the metabolism, interactions (eg, drug, environment, and genetic), or targets of the drugs. Increased knowledge of the pharmacology of antithrombotic drugs and the mechanisms underlying thrombosis has led to the development of newer drugs with faster onset of action, fewer interactions, and less interpatient variability in their antithrombotic effects than previous antithrombotic drugs. Treatment options now include the next-generation ant platelet drugs prasugrel and ticagrelor, and, in terms of anticoagulants, inhibitors that directly target factor IIa (dabigatran) or Xa (rivaroxaban, apixaban, edoxaban) are available. In this Series paper we review the pharmacological properties of these most commonly used oral antithrombotic drugs, and explore the development of antiplatelet and anticoagulant therapies

298. **Mensah N, Sukums F, Awine T, Meid A, Williams J, Akweongo P, Kaltschmidt J, Haefeli WE, Blank A. Impact of an electronic clinical decision support system on workflow in antenatal care: the QUALMAT eCDSS in rural health care facilities in Ghana and Tanzania. *Global health action*. 2015; 8.**

Background: The implementation of new technology can interrupt established workflows in health care settings. The Quality of Maternal Care (QUALMAT) project has introduced an electronic clinical decision support system (eCDSS) for antenatal care (ANC) and delivery in rural primary health care facilities in Africa. **Objective:** This study was carried out to investigate the influence of the QUALMAT eCDSS on the workflow of health care workers in rural primary health care facilities in Ghana and Tanzania. **Design:** A direct observation, time-and-motion study on ANC processes was conducted using a structured data sheet with predefined major task categories. The duration and sequence of tasks performed during ANC visits were observed, and changes after the implementation of the eCDSS were analyzed. **Results:** In 24 QUALMAT study sites, 214 observations of ANC visits (144 in Ghana, 70 in Tanzania) were carried out at baseline and 148 observations (104 in Ghana, 44 in Tanzania) after the software was implemented in 12 of those sites. The median time spent combined for all centers in both countries to provide ANC at baseline was 6.5 min [interquartile range (IQR) =4.0–10.6]. Although the time spent on ANC increased in Tanzania and Ghana after the eCDSS implementation as compared to baseline, overall there was no significant increase in time used for ANC activities (0.51 min, p=0.06 in Ghana; and 0.54 min, p=0.26 in Tanzania) as compared to the control sites without the eCDSS. The percentage of medical history taking in women who had subsequent examinations increased after eCDSS implementation from 58.2% (39/67) to 95.3% (61/64) p<0.001 in Ghana but not in Tanzania [from 65.4% (17/26) to 71.4% (15/21) p=0.70]. **Conclusions:** The QUALMAT eCDSS does not increase the time needed for ANC but partly streamlined workflow at sites in Ghana, showing the potential of such a system to influence quality of care positively.

299. Metghalchi S, Ponnuswamy P, Simon T, "Indoleamine 2, 3-dioxygenase fine-tunes immune homeostasis in atherosclerosis and colitis through repression of interleukin-10 production." ***Cell metabolism*** **22.3: 460-471.2015**

Indoleamine 2, 3-dioxygenase 1 (Ido1) is a rate-limiting enzyme that catalizes the degradation of tryptophan along the kynurenine pathway. Here, we show that Ido1 activity sustains an immunostimulatory potential through inhibition of interleukin (Il)10. In atherosclerosis, Ido1-dependent inhibition of Il10 translates into disease exacerbation.

The resistance of Ido1-deficient mice to enhanced immune activation is broken in Ido1/Il10 double-deficient mice, which show exaggerated immune responses and develop severe spontaneous colitis. We demonstrate that Ido1 activity is required for the regulation of Il10 and that kynurenic acid (Kna), an Ido1-derived metabolite, is responsible for reduced Il10 production through activation of a cAMP-dependent pathway and inhibition of Erk1/2 phosphorylation. Resupplementation of Ido1-deficient mice with Kna limits Il10 expression and promotes atherosclerosis. In human atherosclerotic lesions, increased levels of Kna are associated with an unstable plaque phenotype, and its blood levels predict death and recurrent myocardial infarction in patients with coronary artery disease.

300. **Metta E, Bailey A, Kessy F, Geubbels E; Hutter I, aHaisma H. Lived Experiences on use of Diabetic Medications and Continuity among Adults in South Eastern Tanzania.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Diabetes is a chronic condition requiring many patients to use life-long medications. Despite such a demanding endeavor, little is known on the individual experiences with diabetes medication use and continuity, especially from rural areas of Tanzania. **Aim:** To explore the lived experiences with diabetes medication use continuation among adult community members. **Methods**: We conducted four focus group discussions followed by nineteen in-depth interviews with adult diabetic community members in Kilombero district. This allowed for in-depth exploration of the long-term medication use experiences of patients in rural areas. **Results:** Study participants were positive to the use of diabetic medicines. However, high costs for accessing these medicines from health facilities and their unavailability especially in rural villages were the main barriers for their continued use. Selling of household properties to secure income, sourcing the medicines from pharmacies, buying half doses, using under doses and dose omissions were reported as coping strategies. Use of local herbs such as "Moringe oliferus" and "Aloevera" leaves either simultaneously or interchangeably with western medicines was also reported. Uncertainty on which medicine is effective in curing the condition was the motive for their being used together. The continuity of medication use was affected by alcohol use, fear of side effects and loss of hope for getting better.**Conclusion:** Health facility and individuals' aspects are the main barriers

for adult diabetic patients' medication use continuity. There is a need to improve availability, accessibility, affordability, acceptability and accommodation of the diabetic medicines. Diabetic patients need to be informed of the possible consequences of not using the medicines as advised, encouraged to use appropriate treatments and tomaintain continuity of care.

301. Mfinanga J, Sawe H, Mwafongo V, Reynolds T. Pediatric trauma causes, patterns and early intervention at the Muhimbili National Hospital emergency department in Dar es salaam, Tanzania. *3rd MUHAS Scientific Conference*, 2015.

Introduction: Trauma remains the leading cause of death and disability in paediatric and adolescent population worldwide, though most of the childhood injury burden rests in low-income and middle-income countries. Many paediatric deaths attributable to trauma are preventable, and morbidity may be greatly reduced by early intervention, but efforts in sub-Saharan Africa are hampered by a lack of regional data to guide interventions. **Methods:** This was a prospective descriptive cohort study of children under 18 years of age based in the Emergency Department (ED) at Muhimbili National Hospital (MNH) in Dar es Salaam. We used standardized trauma data collection embedded within the clinical chart to assess the mechanism and pattern of injury, and collected follow-up data on interventions performed in the first 24 hours after presentation. **Results:** We enrolled 509 children from August to December 2012, 65.6% male and 34.4% were female. The majority (98.6%) sustained unintentional injuries. 31% of injured children were under the age of 5 years, 28.5% were between 5 and 9 years, and 21.0% were 10 to 14 years. Motor traffic accident (MTA) was the most common mechanism (40.9%) followed by falls (38.3%) and burns (14.5%). The majority of MTAs (54.3%) were a result of pedestrians struck by vehicles. Fractures and dislocations of upper and lower limbs were the most common injuries (45%) followed by traumatic brain injuries (19%) and burns (14.5%). Only 10% of patients were discharged home from the EMD. Top mechanisms and patterns varied when sub stratified by age quartiles. **Conclusion:** Childhood injury accounts for a substantial burden of disease at the MNH ED, with MTA being the most common mechanism overall, and with mechanisms and patterns varying by age.

302. **Mfoi DJ. Assessment of Utilization of Standard Treatment Guidelines: Comparing Public and Private Health Facilities at Bagamoyo and Temeke Districts in Tanzania. Master of Science (Pharmaceutical Management)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences*****.**

Introduction: Inappropriate prescribing of medicines reduces the quality of medical care and leads to wastage of human and financial resources. Intervention approaches that have proved effective to reduce inappropriate prescribing and improve the use of essential medicines are Standard Treatment Guidelines (STGs), Essential Medicine Lists (EML) and Medicine Therapeutics Committees (MTCs). Despite some empirical studies, there are limited information on the awareness, availability, utilization and adherence to STGs &NEMLIT among health practitioners in Tanzania. The study adds information to policy makers and other stakeholders on the current situation in private and public HFs on availability, utilization and adherence to STGs and identifies factors related to it. **Objective:** To assess the utilization of STGs &NEMLIT in public and private health facilities. **Methodology:** The study was cross-sectional case study using qualitative and quantitative research methods. The study areas were Bagamoyo in Coast region and Temeke in Dar es Salaam region. Health facilities were randomly selected and those in-charge or representatives were interviewed using structured questionnaires. In-depth interviews were conducted to 12 Key Informants. Prescription data basing on the 5-tracer diseases were sampled using systematic sampling method. The data were analyzed using SPSS and thematic content analysis approach. Chi square test was used to test the association of variables between public and private HFs. $P<0.05$ was set to assess the level of significance. **Results:** About 48% of prescribers were aware on existence of STGs (2013). Availability of STGs was higher in public HFs (74%) than in private HFs (26%), p=0.0. Prescribers attended training/sensitization on STGs found to be 3%. About 24% of prescribers utilize STGs, however private HFs utilizes relatively lower (11%) than the public HFs (39%), p=0.02. Prescription adherence to STGs was found to be 50%. Adherence to STGs in public HFs was found to be 58% while in private HFs was found to be 41%, (p=0.0). Adherence to STGs in malaria and ARI have shown significant difference ($p<0.0001$) between private and public HFs. About 6% of persons who order medicines consult STGs &NEMLIT. Failure to produce enough STGs, inadequate

training and sensitization, unstable management system at MoHSW level and absence and/or inefficient MTCs to some HFs are among of factors influencing unavailability and underutilization of STGs. **Conclusion:** There is a remarkable low awareness, training/sensitization, availability, utilization and adherence of STGs to private HFs as compared to public HFs. The situation may contribute to inadequate provision of essential medicines to patients.

303. **Mghamba F, Minzi O, Massawe A, Sasi P. Adherence to Antiretroviral Therapy Among HIV Infected Children in Dar Es Salaam, Tanzania- Risk of Applying One Adherence Determination Method**. ***3rd MUHAS Scientific Conference, 2015.***

Background: Adherence to antiretroviral drugs in pediatric HIV infection is complicated because of many factors including stigma and drug intake logistics. Therefore, combination of adherence methods is important. **Aim:** To determine the level of adherence to antiretroviral therapy, measured by caretaker report, medication return and nevirapine plasma concentration and compare the association between level of adherence and patient's immune status across the three methods of measuring adherence. **Methods:** This was a descriptive cross-sectional study involving HIV infected children aged 2–14 years, on nevirapine- based antiretroviral treatment for at least six months, attending care and treatment clinic in three municipal hospitals in Dar- Es- Salaam City. Eligible patients and their accompanying caretakers were consecutively enrolled after obtaining written informed consent. Structured questionnaire was administered to caretakers to assess patient's adherence by caretaker report and medication return whereas a single blood sample for CD4 cellcount/percent and determination of nevirapine plasma concentration was taken from patients on the day of assessment. **Results:** A total of 300 patients and accompanying caretakers were enrolled and the mean patient age (SD) was 8 (3) years. Caretakers' report and medication return showed good adherence (98% and 97%) respectively. However, the level of adherence assessed by nevirapine plasma concentration (85%) was significantly lower than caretaker report and medication return ($p < 0.001$). The agreement between nevirapine plasma concentration and medicationreturn and between nevirapine plasma concentration and caretaker report was weak ($k = 0.131$) ($k = 0.09$) respectively. Nevirapine plasma concentration below 3 μg/ml was associated with immunosuppression ($p = 0.021$). **Conclusion:** Lower

adherence level observed using nevirapine plasma concentration and its association with immunological response supports the validity of the method and indicates that adherence data obtained from caretaker report and medication return may overestimate the true adherence in pediatric antiretroviral therapy.

304. **Mgoma BG. Health problems facing underfive children living in orphanage centres and associated factors related to their placement in centres in Dar Es Salaam, Tanzania. Master of Public Health Dissertation2015. Muhimbili University of Health and Allied Sciences.**

Background: Children are in need of living environment that promote their wellbeing and the family is considered the best place for the child. However challenges facing families and communities in providing food, shelter, health care and education as well as the diminishing number of potential caregiver due to increasing age, diseases, poverty and a decline of kingship system have lead to an increase in the number of children living in orphanage centres. Life in orphanage centres could have either positive or negative impacts on the welfare of children. Study **Objectives:** The study aimed at determinining health problems facing underfive children living in orphanage centres and the associated factors related to their placement in centres in Dar es Salaam region. Material and Methods: A descriptive cross sectional study employing qualitative and quantitative data collection techniques was applied. Purposive sampling was conducted in each district to obtain the centres which contain underfive children for the study. A total of 126 respondents were sampled for focus group discussions, in-depth interview, mini-interviews and health status assessment. Qualitative data analysis involved data transcribing, coding, themes identification and presentation while SPSS version 19 computer software was used to analyze quantitative data. **Results:** Findings from the study revealed that common health problems of underfive children were mainly skin infections, malaria, flu and coughs. When looking at nutrition status of children using WHO Z-score, it was found that the majority of children had normal nutrition status. The main causes which led to children end up in centres were death of parent(s), abandonment and neglect. Also the study revealed that caretakers and administrators face myriad of problems in handling these children but mostly was financial support to cover medical, education and other daily expenses. On the other hand social welfare officers

were responsible for supervision and monitoring of all the children progress in centres. There were diffent interventions being undertaken by the social welfare officers to reduce child placement in orphange centers from the family to community level. Study **Conclusion and Recommendations:** The most common health problems among the children were skin infections, flu, coughs, dental problems and malaria. The study recommends that more efforts in terms of supportive supervision in orphanage centres by social welfare officers and health professionals should regularly be implemented in order to improve the living conditions of children in those centres. In addition to that, the government should emphasize on the registration of these centres for the purpose of meeting the required criteria for operating the centres. Finally, the government should give priority in providing financial and material support to the centres for the wellbeing of children living in there.

305. **Mgopa LR. Violence, HIV Risk Behaviors and Depression among Men Who Have Sex with Men in Dar Es Salaam, Tanzania. Master of Medicine (Psychiatry)** ***Dissertation 2015.Muhimbili University of Health and Allied Sciences.***

Background: Men who have sex with men (MSM) continue to be at an increased risk of violence, HIV transmission and mental disorders such as depression on top of many other bio- psycho-socio challenges they face as a result of their sexual orientation. Despite evidences that MSM subpopulation health needs require attention now than ever before, Tanzania lacks adequate data regarding magnitude and profile of sexual risk behaviors, violence acts and depression rates. **Objectives:** This study aimed to explore the prevalence of violence and its association with HIV risk behaviors and Depression among men who have sex with men in Dar es Salaam. **Methodology:** A cross sectional study involving 345 MSM was conducted in Dar es Salaam between August and October 2014. A respondent driven sampling technique was utilized and participants were interviewed using a structured questionnaire. Revised Conflict Tactic Scale, PI-IQ-9 and adapted questions from the TDHS 2010 were used to assess violence, depression and HIV-risk behaviors respectively. Continuous and categorical variables were analyzed with student's t-test and chi-square test respectively. Logistic regression analyses were performed to assess for predictors of depression and HIV-risk behaviors. All tests were two sided and $p<0.05$ was taken as significance level. **Results:** Overall, 325 (94.2%) of

participants experienced any form of violence, with emotional violence constituting the majority (90.1%), while physical and sexual violence were reported by 254 (73.6%) and 250 (72.5%) of participants respectively. Depressive symptoms were present in 245 (70.0%) and participants who experienced violence had a 3 times increased risk of depressive symptoms compared to their violence-free counterparts, p<0.00l. Participants who experienced violence had a 1.6 and 1.2 times chance of having multiple sexual partners and trading for sex respectively, (both p<0.01). Violence experience was found to be the strongest associated factor for both depressive symptoms and HIV-risk behaviors. **Conclusions and Recommendations:** Men who have sex with men remain to be among the less favored sub-population in our society. The rates of violence, depressive symptoms and HIV risk behaviors in MSM are astoundingly high thus necessitating extensive interventions. It is possible that the existing socio-cultural values in African settings are unfavorable to the well-being of MSM and may pause as a barrier of health seeking behavior. In view of this, a deliberate measure to deal with the reported high rates necessitates joint intervention efforts from the policy makers, health providers and community at large.

306. **Mhako C, Carneiro L. Prevalence of Dental Caries and Associated Risk among Adults in Ilala District, Dar-Es-Salaam, Tanzania. *3rd MUHAS Scientific Conference,* 2015.**

Background: Planning oral health and dental treatment within a public health system requires information on the prevalence and its distribution. **Aim**: To determine the prevalence and pattern of dental caries and associated risk among adults in Ilala district, Dar-es-Salaam.**Methodology**: A hospital based cross-sectional study involving all public hospitals within Ilala district, Dar es Salaam. From each hospital 82 patients aged 18 years and above were randomly chosen to participate in the study. Self-administered questionnaires assessed demographic details and risk factors associated with the occurrence of dental caries. Patients who responded to more than three questions positively were considered to be at risk of developing dental caries while those who responded to less than three questions were considered to be at low risk. Clinical examination assessed prevalence and pattern of dental caries in accordance with the WHO Basic Oral Health Surveys, (1997). Data was analyzed using SPSS and Chi square

test determined the statistical significance at a level of p<0.05. **Results**: Of the 232 participants the overall prevalence of dental caries was 87.1% with majority in age group 45-68 years (n=41; 91.1%) and females (n=124; 90.5%). Proportionately the lower molars were the most affected teeth (49.6%) with occlusal surface (54.7%) being mostly affected. Majority of participants consumed tea with sugar (96.6%), sugary juices (93.5%), carbonated drinks (92.2%), and sugary snacks (74.6%) in comparison to alcohol (25%) and use of tobacco (3%) with 25% of participants being at risk of developing dental caries. **Conclusion**: The prevalence of dental caries among adult patients attending the dental clinics in Ilala district, Dar es Salaam is high with occlusal surfaces and molars being the most affected tooth type.

307. Mhalu F. Thirty years of HIV and AIDS Research at the Muhimbili University of Health and Allied Sciences: Successes and Challenges with special reference to the TANSWED HIV Programme. *3rd MUHAS Scientific Conference,* 2015.

Background: After report of the first 3 suspect AIDS cases from the Kageraregion, in 1983, the Muhimbili Medical Centre (MMC) recorded the first AIDS patient in October 1984. A month later, the microbiology laboratory at the MMC received sera from the Kagera hospital from patients with extensive genital ulceration.The first specific HIV antibody test (ELISA) in Tanzania was done at the Kagera hospital on 5th August 1985 in collaboration between MMC, WHO/CDC, and MoH. Since then MMC and later MUHAS and MNH took up intensive HIV research, in collaboration with other partners in search of results to guide the AIDS prevention and control efforts. **Objective:** To determine research contribution to interventions for prevention, care and treatment leading to decline of HIV/AIDS. **Methods:** A review of findings from the TANSWED HIV Programme at MUHAS which received financial support from the Swedish Government between 1986 and 2009 was done to determine how research contributed to interventions for prevention, care and treatment leading to decline of HIV/AIDS. **Results:** Research findings over the past 30 years contributed to establishing quality laboratory testing for all levels of care; determined risk factors for HIV transmission; established STIs clinics at the MMC in 1984 and in the City of DSM in 1993 followed by STI services in other sites in the country; advised on blood transfusion HIV screening countrywide beginning 1989;demonstrated HIV counseling and testing influenced HIV

risk reduction; studied risks and interventions of mother to child HIV transmission leading to the PMTCT programme; introduced HIV care and treatment using antiretroviral therapy (ART) since 2004 at the MNH with research funds; prepared for and conducted HIV vaccine trials.**Conclusion:** HIV and AIDS research at MUHAS over the past 30 years has been exciting, challenging, rewarding and has contributed to the decline in HIV prevalence and incidence as well as a decrease in HIV associated illness and deaths.

308. Mhila G, Kessy A. Use of mobile health: Awareness of pregnancy danger signs among women in Bagamoyo district. *3rd MUHAS Scientific Conference*, 2015.

Background: Maternal mortality ratio in Tanzania is estimated at 454 deaths per 100,000 live births. In some sub-Saharan Africa countries, 33% of maternal deaths are due to failure or delay in recognition of danger signs. Women traditionally learn about danger signs through counseling during antenatal visits. Despite over 96% of pregnant women in Tanzania making at least one antenatal visit, this counseling opportunity is often missed. Consequently, only (53%) are informed of signs of pregnancy complications. For this and other reasons, mobile phones (mHealth) technological innovations have been used in some projects to support health care services. D-Tree International, working with partners developed a phone-based tool on maternal health care to assists staff at reproductive health clinics deliver a set of maternal guidelines. **Study Aim:** The purpose of this study was to assess the influence of mHealth on awareness of pregnancy danger signs and utilization of maternal health services **Methods**: A cross-sectional comparative study was conducted involving two groups (164 each) of pregnant and postnatal women in Bagamoyo where mHealth has been used and Rufiji as a control. **Results**: All women in the intervention group could mention at least one danger sign compared to 91% from the non-intervention group. The difference in the awareness of pregnancy danger signs between the two groups was statistically significant in the independent-samples t-test (M=3.74, SD=1.612) and (M=3.35, SD=1.882) for mHealth and control group; p= 0.045. Additionally, more women in the intervention group received counseling (97.0%) and utilized health facilities (92%) compared to 82% and 88% respectively in the non-intervention group. **Conclusion:** Findings affirmed usefulness of mHealth to ensure completeness of maternal health services provided by health workers at the point of care.

309. **Migoha C, Kaale E, Kagashe G. Formulation Development of Generic Omeprazole 20mg Enteric Coated Tablets. *3rd MUHAS Scientific Conference,* 2015.**

Background: Omeprazole is a potent proton pump inhibitor with powerful inhibition of secretion of gastric juice. Oral site-specific drug delivery systems have recently attracted a great interest for the local treatment of bowel disease and for improving systemic absorption of drugs which are unstable in the stomach. However, microenvironment in the gastrointestinal tract and varying absorption mechanisms causes hindrance for the formulation and optimization of oral drug delivery. **Objective:** To develop and optimize enteric coating process for Omeprazole tablets. **Methodology:** Different batches of core tablets were sub coated, one set sub coated with opadry and another with a mixture of light magnesium oxide, magnesium stearate and absolute alcohol omeprazole magnesium. Seal coating was applied using opadry to achieve certain weight gain and to protect omeprazole from acidic coating polymers. A comparative dissolution test was performed. **Results:** The variation of thickness and diameter were observed to be minimal with a weight gain of 3 – 4% of enteric polymer. The friability was less than 0.5% assay was between 100.1 to 105.9% Disintegration test show that in each tested batch the enteric coated layer remained intact in 0.1N HCl for 2 hours and when exposed to alkaline media of phosphate buffer pH 6.8 it dissolved within few minutes. Dissolution release was 98.8% to 102.4% within two hours when the product is exposed to phosphate buffer pH 6.8 after 2 hours. The similarity and dissimilarity factors were calculated and observed to be 54 to 61 and 4 to 5 respectively. **Conclusion:** A simple and good enteric coating process was developed and tested, with potential for transfer into local industries.

310. **Migoha CO, Ratansi M, Kaale E, Kagashe G. Preformulation Studies for Generic Omeprazole Magnesium Enteric Coated Tablets. *BioMed research international*. 2015.**

Preformulation is an important step in the rational formulation of an active pharmaceutical ingredient (API). Micromeritics properties: bulk density (BD) and tapped density (TD), compressibility index (Carr's index), Hauser's ratio (H), and sieve analysis were performed in order to determine the best excipients to be used in the formulation development of omeprazole magnesium enteric coated tablets. Results show that

omeprazole magnesium has fair flow and compressibility properties (BD 0.4 g/mL, TD 0.485 g/mL, Carr's index 17.5%, Hauser's ratio 1.2, and sieve analysis time 5 minutes). There were no significant drug excipient interactions except change in colour in all three conditions in the mixture of omeprazole and aerosil 200. Moisture content loss on drying in all three conditions was not constant and the changes were attributed to surrounding environment during the test time. Changes in the absorption spectra were noted in the mixture of omeprazole and water aerosil only in the visible region of 350–2500 nm. Omeprazole magnesium alone and with all excipients showed no significant changes in omeprazole concentration for a 30-day period. Omeprazole magnesium formulation complies with USP standards with regards to the fineness, flowability, and compressibility of which other excipients can be used in the formulation.

311. **Milinda S, Leyna G, Massawe A. Effectiveness of nutritional counseling on nutrition status of children with cerebral palsy: A methodological paper.** ***3rd MUHAS Scientific Conference, 2015***.

Background: Cerebral palsy (CP) is a non-progressive neuromuscular disorder of varying degrees resulting from damage or a defect in the part of the brain that controls motor function. CP children experience feeding and drinking problems that affects child's nutritional status and failure in growth. Lack of nutritional counseling services on feeding practices contribute to high prevalence of malnutrition in these children resulting into increases health care burden. This study aims at assessing the effect of nutrition counseling on nutritional status of children with CP at Muhimbili National Hospital, in Tanzania. **Methods:** This is randomized controlled clinical trial using a block stratified sampling technique. Underfive children with diagnosed CP and feeding problems whose parents have consented to a number of 140 are eligible participants to either interventional or control group. Instruments have been developed and interviewers have been trained. Recruitment and intervention is on progress. Participants in intervention group receives 6 nutrition counselling, 4 feeding position therapy sessions and two home visits follow-up while participants in the control group receive routine care. Anthropometric measurements, feeding practices and 24-h recall food intake are assessed. The primary outcome measures an increase weight gain to 1.15kg or above; Secondary outcome measures the change proportion of children with improved feeding

skills and caregiver-child relationship. **Conclusion:** The results of this trial will provide evidence on effectiveness of nutrition counselling as a low-technology intervention on management of CP children with feeding problems in Tanzania.

312. **Minja RL. Nurses' Knowledge And Practice On Management Of Post- Operative Complications In Recovery Rooms To The Selected Referral Hospitals In Dar Es Salaam Master of Science in Nursing (Critical Care and Trauma)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Recovery room is an essential part of the post-anesthesia care pathway. The nurse is required to assess, and make clinical judgments about the patient's recovery from anesthesia, relies heavily on investment in the education and training of post-anesthesia care. Maintenance of standards requires continual update such as resuscitation skills, application of new techniques on how to prevent postoperative complications, however there has been no published study in Tanzania undertaken to assess knowledge and practice on the management of postoperative complications among nurses working in recovery room. **Objectives:** The overall objective of this study was to determine the nurses' knowledge and practice on management of post-operative complications in the recovery room to the selected referral hospitals. **Material and Methods:** Observational cross-sectional study design using quantitative research method was used in the assessment of knowledge and practices. Data for knowledge assessment was collected by self administered questionnaires and checklist was used for observation of skills/practice in the recovery rooms. The study recruited 165 participants from Muhimbili National Hospital, Muhimbili Orthopedic Institute, Temeke, Mwananyamala and Amana Hospitals. Eight nurses from Muhimbili National Hospital were used for pre-testing the data collection tool. The data was collected by principal researcher and five research assistants. Data were processed and analyzed by the researcher. Data analysis was done by using Statistical Package of Social Science (SPSS) version 16. The results were summarized using frequencies and percentages, and presented using figures, tables and text. **Results:** In this study, 78.8% of participants were females and 21.2% were males. The age of the participants, (41.8%) ranged from 26 years to 35 years, 41.2% ranged from 36 years to 45 years, 11.5% ranged from 46 years to 55 years, 4.2% ranged from 18 years 25 years and 1.2% was ranging from 56 years to 65 years old. More than half

62.4% of the participants had ordinary diploma level, 23.6% had degree in nursing science, and 0.6% had masters in nursing science. The majority of participants 63.6% reported to have training on management of postoperative complications in recovery room, during their basic nursing training. Thirty six point four (36.4%) of participants reported to have in service training on management of postoperative complications in the recovery room, In knowledge assessment few participants 11.5% scored very good, 28.5% scored good level of knowledge, 41.2% scored satisfactory level of knowledge and 18.8% had poor knowledge. Therefore the participants' knowledge was mainly satisfactory and good. There was no association between knowledge and level of education (P-value 0.234), and also no association between knowledge and participants' qualifications (P-value 0.185). However there was statistically significant difference in level of knowledge and years of experience (P-value 0.014), level of knowledge and nursing school training (P-value 0.017), knowledge level and participants who had in-service training (P-value 0.03) and knowledge level and level of hospital (P-value 0.000) on management of postoperative complications in recovery room. In skills assessment, no participants scored above 85%, but forty-five percent scored poorly. **Conclusion:** Nurses who participated in this study demonstrated considerable knowledge and practice gap in areas identifying and practice on management of postoperative complications. These findings indicate that, participants who are working in the recovery room need to be provided with the in-service training in order to update their knowledge and skills for the benefits of their clients. Schools of nursing should include management of postoperative complications in curricula. This is because those who performed well in knowledge assessment were those who had undergone training on management of post-operative complications in the recovery room.

313. **Mirambo MM, Majigo M, Aboud S, Groß U, Mshana SE. Serological makers of rubella infection in Africa in the pre vaccination era: a systematic review. *BMC research notes*. 2015; 8(1):716.**

Background: Rubella infections in susceptible women during early pregnancy often results in congenital rubella syndrome (CRS). World Health Organization (WHO) recommends that countries without vaccination programmes to assess the burden of rubella infection and CRS. However; in many African countries there is limited data on

epidemiology of rubella infection and CRS. This review was undertaken to assess the serological markers and genotypes of rubella virus on the African continent in order to ascertain the gap for future research. **Findings:** A systematic search of original literatures from different electronic databases using search terms such as 'rubella' plus individual African countries such as 'Tanzania', 'Kenya', 'Nigeria' etc. and different populations such as 'children', 'pregnant women' etc. in different combinations was performed. Articles from countries with rubella vaccination programmes, outbreak data and case reports were excluded. Data were entered in a Microsoft Excel sheet and analyzed. A total of 44 articles from 17 African countries published between 2002 and 2014 were retrieved; of which 36 were eligible and included in this review. Of all population tested, the natural immunity of rubella was found to range from 52.9 to 97.9 %. In these countries, the prevalence of susceptible pregnant women ranged from 2.1 to 47.1 %. Rubella natural immunity was significantly higher among pregnant women than in general population ($P < 0.001$). Acute rubella infection was observed to be as low as 0.3 % among pregnant women to 45.1 % among children. All studies did not ascertain the age-specific prevalence, thus it was difficult to calculate the rate of infection with increase in age. Only two articles were found to report on rubella genotypes. Of 15 strains genotyped; three rubella virus genotypes were found to circulate in four African countries. **Conclusion:** Despite variations in serological assays, the seroprevalence of IgG rubella antibodies in Africa is high with a substantial number of women of childbearing age being susceptible to rubella infection. Standardized sero-epidemiological data in various age groups as well as CRS data are important to implement cost-effective vaccination campaigns and control strategies.

314. Mirambo MM, Simon C, Kajura A, Kidenya B, Majigo M, Mshana SE. Reduction of HIV transmission rates from mother to child in the era of antiretroviral therapy in the Lake Victoria zone, Tanzania. *Tanzania Journal of Health Research*. 2015; 17(3).

Background: Since the introduction of prevention of mother to child transmission (PMTCT) in Tanzania, HIV infection rates have been reduced in different regions across the country. However, there is limited published data from the Lake Victoria zone of Tanzania regarding the effectiveness of various regimens used for PMTCT. This study

was done to assess the effectiveness of antiretroviral therapy in preventing mother to child transmission of HIV. **Methods:** Infants aged ≤18 months born to HIV positive mothers undertaking PMTCT programme and those with no intervention program from Mara, Kagera, Mwanza and Shinyanga were tested for HIV-1 DNA polymerase chain reaction (PCR). Data were analysed using STATA version 10.0 to assess factors associated with outcome. **Results:** A total of 1,005 study subjects were enrolled in the study. Of these 55% (554/1005) were females. Majority (82.6%; 830/1005) of the infants studied were aged 1-6 months. The median age of the infant studied was 3 months (IQR 2-4). Out of 1005 non-repetitive samples; 61(6.1%) were HIV-1 DNA PCR positive. Positive dried blood spots (DBS) rates by region were 6.4%, 5.9%, 5.6% and 5.1% in Mwanza, Mara, Kagera and Shinyanga, respectively. During pregnancy interventions, the positive rate for women with no therapy was 12.6% and for zidovudine alone was 5.4% while for triple antiretroviral therapy was 0.5%. Women who were in highly active antiretroviral therapy (HAART) during pregnancy had significantly lower positive rate than those without HAART treatment (p=0.001). Of 755 infants who received nevirapine, 3.9% were DBS positive compared to 12.8% of those who didn't receive nevirapine (p=0.001). **Conclusion:** The use of antiretroviral therapy in the PMTCT programme is effective in reducing HIV transmission from mother to child.

315. **Misaeli CG. Factors Associated With Intention to Request For Caesarean Section among Anc Attendees at Muhimbili National Hospital In Dar es Salaam. Master of Medicine (Obstetrics and Gynecology)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: The rate of caesarean section (Cs) has increased dramatically worldwide in the past decade "maternal request" being a predominant contributor. The cost of caesarean section however, is twice that of vaginal delivery and is associated with considerable financial strain on families and the health care system, raising important concerns over rational use of resources. The right to choose mode of delivery is increasingly being recognized as a basic right of childbearing women. This poses ethical dilemmas, whether Cs on maternal request should be allowed as a standard practice. There is a need to determine the magnitude, perceptions and associated factors regarding Cs on maternal request since there is no such study in our setup. **Objectives:** To

determine the proportion of women who had requested/intended to request for Cs among pregnant women seeking antenatal care (ANC) at urban/tertiary health facility as well as assess perceptions and factors associated with these intents. **Methodology:** A hospital based, descriptive cross sectional study was conducted from August to October 2014 among ANC attendees at Muhimbili National Hospital (MNH) in Dar es Salaam, Tanzania. An interviewer administered questionnaire was used in data collection. Information obtained was summarized in SPSS database version 20, and then data cleaning and analysis was done. **Results:** A total of 440 pregnant women participated in the study. The mean age of study participants was 29.81 (SD: 5.01). Proportion of participants who requested for Cs at MNH in previous pregnancy was 5.5% and their common reason to request for Cs in previous pregnancy was fear of losing the baby. The proportion of participants who intended to request for Cs in index pregnancy was 7.7%. Seventy-nine percent (n=349) of the participants perceived that fear of labor pain was the main reason towards requesting for Cs. Almost half (47%) of the participants believed that Cs on maternal request should be allowed. Participants who previously delivered by Cs had six times higher odds to intend to request for Cs in the index pregnancy (AOR: 6.45, 95% CI 2.3-7.8). **Conclusion:** Caesarean delivery on maternal request is on the rise at Muhimbili National Hospital, with fear of labour pains as the most commonly reported reasons. The intent was intensified by previous history of Cs. **Recommendation:** There is a need to strengthen counseling to allay client's anxiety regarding fear of losing their babies and labour pains during normal delivery. Additionally, it is time for tertiary hospitals to consider incorporating anesthetic management such as epidural and spinal block to improve client experiences of the labour and delivery process (Although this will need more consideration such as improving infrastructure and skilled manpower).

316. **Mituro TH. Age of Root Apex Closure of Permanent Teeth in 6-15 Year Old Children in Dar Es Salaam, Tanzania. Master of Dentistry (Pediatric Dentistry)** ***Dissertation2015. Muhimbili University of Health and Allied Sciences.***

Background: Status of the root apex closure of permanent teeth is important in the planning of treatment in various dental disciplines, general pediatrics, pediatric endocrinology, as well as forensic dentistry and varies with race, sex and between jaws. Aim: Determination of permanent teeth root apices closure status among Tanzanian

children aged 6-15 years. **Materials and methods:** A hospital based, retrospective cross sectional study involving 321 digital Orthopantomographs. Root apices of` all permanent teeth except third molars were examined and recorded as closed or open. Data management was done using SPSS 2002 version 16.0. Chi square test was employed to test significant differences. **Results:** Females constituted 55% of the subjects. At 6-7.99 years, one fifth of the mandibular central incisors had root apices closed and 66% of root apices closed at 8-9.99 years. At 10-11.99 years, 25% of maxillary canines, len second premolars and mandibular left canines had closed root apices. At 12-13.99 years, 54% to 65% of maxillary left canine, left first premolar, left second premolar, mandibular canines, 52% to 59.5% of the right first premolars, and let} first premolars had root apices closed. At 8-11.99 years, 69% of the maxillary right first molars in males had apices closed compared to 47% in females ($p<0.05$). At 10-13.99 years, 77% and 78% of the madibular canines and left first premolars in females had apices closed compared to 4-4% and 56% in males, respectively ($p<0.05$). At 8-11.99 years, 84% of t11e mandibular central incisors had apices closed compared to 63% of maxillary ones ($p<0.001$), and 56% of the maxillary second molars had apices closed at 10-13.99 years compared to 28% mandibular ones ($p<0.00l$) **Conclusion:** Permanent teeth mot apices closure in the studied sample was early compared to Caucasians being in agreement with the permanent teeth emergence pattern data previously reported among Tanzanian children.

317. **Mkoka DA, Mahiti GR, Kiwara A. "Once the government employs you, it forgets you": Health workers' and managers' perspectives on factors influencing working conditions for provision of maternal health care services in a rural district of Tanzania."** ***Human resources for health. 2015.13(1): 77.***

Background: In many developing countries, health workforce crisis are one of the predominant challenges affecting the health care systems' function of providing quality services, including maternal care. The challenge is related to how these countries establish conducive working conditions that attract and retain health workers into the health care sector and enable them to perform effectively and efficiently to improve health services particularly in rural settings. This study explored the perspectives of health workers and managers on factors influencing working conditions for providing maternal health care services in rural Tanzania. The researchers took a broad approach to

understand the status of the current working conditions through a governance lens and brought into context the role of government and its decentralized organs in handling health workers in order to improve their performance and retention. **Methods:** In-depth interviews were conducted with 22 informants (15 health workers, 5 members of Council Health Management Team and 2 informants from the District Executive Director's office). An interview guide was used with questions pertaining to informants' perspective on provision of maternal health care service, working environment, living conditions, handling of staff's financial claims, avenue for sharing concerns, opportunities for training and career progression. Probing questions on how these issues affect the health workers' role of providing maternal health care were employed. Document reviews and observations of health facilities were conducted to supplement the data. The interviews were analysed using a qualitative content analysis approach. **Results:** Overall, health workers felt abandoned and lost within an unsupportive system they serve. Difficult working and living environments that affect health workers' role of providing maternal health care services were dominant concerns raised from interviews with both health workers and managers. Existence of a bureaucratic and irresponsible administrative system was reported to result in the delay in responding to the health workers' claims timely and that there is no transparency and fairness in dealing with health workers' financial claims. Informants also reported on the non-existence of a formal motivation scheme and a free avenue for voicing and sharing health workers' concerns. Other challenges reported were lack of a clear strategic plan for staff career advancement and continuous professional development to improve health workers' knowledge and skills necessary for providing quality maternal health care. **Conclusion:** Health workers working in rural areas are facing a number of challenges that affect their working conditions and hence their overall performance. The government and its decentralized organs should be accountable to create conducive working and living environments, respond to health workers' financial claims fairly and equitably, plan for their career advancement and create a free avenue for voicing and sharing concerns with the management. To achieve this, efforts should be directed towards improving the governance of the human resource management system that will take into account the

stewardship role of the government in handling human resource carefully and responsibly.

318. **Mkoka D, Mahiti G, Kiwara A, Mwangu M, Goicolea A. Health Workers and maternal health.Exploring governance issues within a rural district, Tanzania . *3rd MUHAS Scientific Conference, 2015.***

Background: Availability of health workers with required skills, positive attitude, behaving professionally and motivated is the key for improving maternal care in Tanzania. The aim of this study is to explore health workers perspectives of governance related issues affecting their roles in providing quality maternal care. **Methods:** In-depth interviewswere conducted with health workers from different facility levels in order to explore their views of governance related issues affecting their roles in provision of maternal care. Documentary reviews and a survey of health facilities wereconducted to supplement the data. All the materials were analysed using a thematic content analysis approach.**Results:** Participants viewed that maternal care provision is suboptimal with incomprehensive antenatal care, unsafe and unclean delivery care and uncompleted postpartum care. They were of the view that difficult working environment handicapped their capacity to provide quality maternal care and that they worked with unsettled mind as a result of poor living condition. Failure of their needs to be met by the management was reported to lower their morale for work. Lack of fairness and transparency in dealing with health workers financial claims and lack of clear strategic plan for staff capacity building and carrier development were pointed out as issues that contribute in demotivating health workers and lower their performance.**Conclusion:** Shortage of health workers coupled with poor working conditions is a contributory factor for suboptimal maternal care provided in rural facilities. To maximize their performance, working condition and living condition should be improved while meeting their rights timely and equitably as they fulfil their roles. Special focus should be directed toward improving governance of health workers management system for better performance of health workers.

319. Mkunde BS. Health Care Providers experiences and Perceptions of Pain Assessment and Management in Children with Cancer at Muhimbili National

Hospital, Tanzania. Master of Science (Nursing) ***Dissertation 2015.Muhimbili University of Health and Allied Sciences*****.**

Background: Pain is a feeling of hurt or strong discomfort. Despite some progress in recent years, pain continues to be undertreated globally, particularly in children. Different studies indicate that globally there is high prevalence of acute and chronic pain. Clinically pain in cancer has been associated with the disease itself its complications include high fever, unconsciousness, psychological effects and even 'death. There are limited data on pain assessment and management to patients with cancer in Africa, particularly in Tanzania where few studies have been done focused on pain in burn patients and postoperative pain but pain in children with cancer not well studied. Thus, the problem need to be well addressed as it is well known that children (undertive years old) cannot explain themselves thoroughly. Therefore, there is a need to form a basis to improve pain assessment and management. **Objectives:** To explore healthcare providers' experiences and perceptions of pain assessment and management in children with cancer at Muhimbili National Hospital, Tanzania. **Method:** Eight (8) qualitative in depth interviews were conducted in order to explore healthcare providers' experiences and perceptions of pain assessment and management in children with cancer at Muhimbili National Hospital, Tanzania. The participants for in-depth interviews who were purposefully selected included doctors and nurses. All interviews were audio-recorded and verbatim transcribed. Analysis: Data from the in-depth interviews were transcribed, then translated in English Language and analyzed using qualitative content analysis technique. Meaning units from the interview scripts were summarized into condensed meaningful units and then coded. The codes were compared based on similarities and differences then sorted into categories; the underling meaning of categories were linked together to create a theme. **Findings:** In this study there were five categories under one theme -Caring and struggling to provide good service with many obstacles hindering its achievement. The categories were: Health care providers struggling to provide good care and preventing harm; Health care providers facing obstacles in pain recognition and providing care; Health care providers maintaining professionalism and good _ interpersonal relationships; and Finding deficiencies in care provision support. The findings affirmed that health care providers use unreliable methods to assess pain, that is,

everyone use his/her own methods to assess pain, making pain assessment very subjective and lacking consistency. Health care providers mentioned the use communication as a way of facilitating pain assessment. Health care providers expressed their heartbroken feelings when they fail to relieve pain from the children with cancer. Furthermore, several challenges were highlighted by health care providers including: difficulties in relieving pain despite their best efforts; exposure too occupational hazards working in dangerous environment and risk of being affected by chemical hazard from chemotherapy when mixing drugs manually; and shortage of staff especially nurses in the oncology wards that hinder good performance of their work. Health care providers wished to use WHO guidelines if introduced. **Conclusion:** in this study a number of challenges were reported, the use of Unreliable methods to assess pain which means high subjectivity and lack of consistency. Health care providers expressed their heartbroken feelings when they failed to relieve pain from the children with cancer, experienced occupational hazards by working in dangerous environment of being affected by chemotherapy and shortage of staff especially nurses in the oncology wards. Health care providers wished to use WHO guidelines if introduced. **Recommendations:** There is a need to raise awareness among HCPs on the use of protective gears when mixing drugs manually to reduce the risk of hazards from chemicals. The MoHSW/MNH need to ensure a policy is in place and enforced to protect and compensate those who will become affected by occupational hazards. The ‘ authority concerned needs to provide the guidelines to oncology wards to ensure that the medical decisions are made based on the directions of the guidelines for pain assessment and management hence ensure the quality of the service. Health care - providers need an objective measure of pain intensity and an understanding of the factors that cause or exacerbate pain for an individual child.-health care providers A may benefit from debriefing sessions to air out their sadness and sorrows in relation to their work.

320. **Mlekwa FM. Parents’ Knowledge, Attitudes and Practices L About Preventing Child Sexual Abuse In Rural I Tanzania: A Study of Shinyanga District. Master of Public Health *Dissertation 2015. Muhimbili University of Health and Allied Sciences*.**

Background: The role of parents’ on preventing child sexual abuse in the community has not been adequately emphasized. Few studies had been carried out on knowledge, p

attitudes and practices related to protection of the child against sexual abuse in Tanzania. It is this gap in knowledge that this study intended to. **Objective:** The aim of this study was to assess Parents' knowledge.attit1.1des and practices about preventing child sexual abuse in Shinyanga district in order to strengthen child protection. Methodology: This was cross—sectional study conducted in Shinyanga District, during the month of July, 2015. Multistage cluster sampling technique was applied to obtain study participants from a list of sampling frame. Data were entered and analyzed by SPSS window version 20.0. Analysis of knowledge, attitudes and practices was performed and p—va.lue of < 0.05 was considered as statistically significant. **Results:** A total of 384 respondents were included in the study. The results showed that 95.6% of respondents had high knowledge while 4.4% had poor level of knowledge for preventing child sexual abuse. Also the results indicated that 98.7% of parents had positive attitudes on preventing child sexual abuse. Moreover, 72.7% of respondents had poor practices in relation to child sexual abuse and 27.3% of respondents had good practices on protection and prevention of child sexual abuse. **Conclusion and recommendation:** Knowledge and attitudes of parents on child sexual abuse prevention was high in the study area. Moreover, the practices of parents on child abuse prevention were poor. Therefore, programmers for parents, all with the ultimate aims of protecting children from the preventable harm and trauma of sexual abuse in rural communities.

321. **Mlelwa R, Mamuya S. Flour dust and respiratory health among flour milling workers in Dar es Salaam: A cross sectional study. *3rd MUHAS Scientific Conference, 2015.***

Background: Dust is known as an influential agent and most frequent cause illinesses of respiratory systems. In working areas, the respiratory diseases result from exposure to the dust which may cause acute or chronic respiratory effects. **Objective:** The study assessed respiratory health symptoms among flour milling workers in Dar es Salaam. **Methods:** 104 workers in flour milling industry, and 100 controls participated in the cross sectional study. Information on demographic characteristics, occupation, respiratory symptoms, smoking habits and use of respiratory protection equipments was collected by questionnaire adopted from the American Thoracic Society. Peak flow rates by use of peak flow rate meters were performed to assess lung function of study population.

Analysis of data was done using SPSS program in which frequencies obtained, Chi-squire test and Fisher exact test measured association between exposed and non exposedparameters. The criterion for significant association was when $p<0.05$. **Results:** Exposed workers had higher prevalence of respiratory symptoms than controls with significance difference for: day or night coughing, 12(25%) vs. 6(13.3%) for females, and 11(19.6.%) vs. 2(3.6%) for males, p=0.006, coughing 4times a day for more than 4 days a week, 9(18.8.%)vs. 1(1.2%) for females, p=0.003, shortness of breath when walking and stop for breath, 5(10%) vs. (2.2 %) for females, and 11(19.6%) vs. 3(5.5%) p=0.010). Also there was an increasing trend of symptoms for exposed versus non exposed , both male and females, though the significance difference was in day or night coughing, shortness for breath when walking and stop for breath among females, and, coughing 4times a day for more than 4days/ week. The mean work duration for exposed workers was 6 years (SD +/- 6.088) and 5 years (SD +/- 2.821) for non exposed workers. However, the difference was not statistically significant. Smoking is an important risk factor for chronic respiratory symptoms, smokers among exposed were21(20.2%) and control were 19(19%) however, the differences in respiratory symptoms between exposed and non exposed cannot be explained by smoking, since the difference in smoking prevalence among the two groups is not statistically significant. **Conclusion:** Flour mills workers have higher prevalence of respiratory symptoms probably caused by dust exposure, independent of smoking habit. Higher prevalence suggests the relationship between flour dust exposure and respiratory symptoms. There is need to carry out more robust study to ascertain the dust exposure levels in relation to occupational exposure limits (OEL) and respiratory health effects.

322. **Mlelwa R. Musculoskeletal disorders and associated factors among gold mine truck operators in Northern Tanzania. Of Master of Science (Environmental and Occupational Health)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Musculoskeletal disorders (MSDs) are the major cause of occupational sickness, absenteeism and loss of productivity at workplaces. Worldwide, work related MSDs account for between 42 and 58% of all work related illnesses and 40% of all work related health costs. The prevalence among drivers has been reported to range between 53

and 91%, worldwide, and these are attributed to ergonomic causes, injury, working postures and a myriad of other factors. Despite the massive growth of the mining industry in Tanzania, little is known on the extent of the MSDs. Few studies have been conducted in Africa and none in Tanzania to date. **Objectives:** This study aimed at assessing the magnitude of MSDs and associated factors among conventional goldmine truck operators in Northern Tanzania. **Materials and Methods:** Convenient sampling was used to select 86 truck operators who consented to participate in the study. Standardized Nordic questionnaire was adapted and used to assess work related MSDs and the associated factors. Frequency distribution, proportion for categorical variables and mean for continuous data were computed by SPSS software. Sum score was used to establish two scales for scoring seat comfortability and vibration exposure. Chi-square test and independent t-test were used for analyses of categorical and continuous variables, respectively. Binary logistic regression and multiple regression analyses were done to determine the odds ratio and adjusted odds ratios for different predictors of MSDs. **Results:** Study participants were generally males (95%) with mean age of 33.79 ± 6.395 years. The mean work duration for operators was 6±2.743 years. The prevalence of MSDs was 74.4%, low back pain being the most common presenting musculoskeletal disorder among truck operators 56 (65%), followed by shoulder pain 29 (34%), neck pain 26 (30%) and elbow pain 13 (15%). There was a significant difference in mean age value between ($p=0.041$) those with MSDs and those with no MSDs. Uncomfortable seat, trucks with high level of vibration, previous work in similar job and increased work duration, showed increased risk to the occurrence of MSDs after adjusting for age, BMI status, MSDs predisposing leisure activities and education level. However, there was no enough evidence ($p>0.05$) to support for significant association. **Conclusion and Recommendations:** The study shows a high prevalence (74.4%) of MSDs among the truck operators in the conventional gold mine. This suggests that the interaction of many factors may result into MSDs among truck operators. Implementation of ergonomically sound interventions in the work place has the potential of reducing the incidence of MSDs. It is therefore recommended that truck operator's specific ergonomic programmes be considered as a method for prevention of MSDs.

323. **Mmbali SM. Applicability and Use of Structured Telephone Monitoring To Follow-Up Heart Failure Patients Discharged From Muhimbili National Hospital Medical Wards. Master of Medicine (Internal Medicine)** ***Dissertation 2015. Muhimbili University 0f Health and Allied Sciences.***

Background: Previous studies from developed countries have shown that home monitoring and follow-up of heart failure (HF) patients by use of phone calls is cost effective as it reduces re adrnission and improves patients' clinical status. This intervention has however not been tested in resource poor countries including Tanzania, and there are questions as to whether it is applicable in such situations. **Aim:** To study the use and applicability of structured telephone monitoring to follow up HF patients discharged from Muhimbili National Hospital (MNH) medical wards. **Methods:** A descriptive cross sectional study was conducted between March and September 2014. All HF patients admitted in the cardiovascular medicine department ` during the study period were approached for inclusion into the study. Consenting patients were consecutively recruited and information on their present and discharge clinical status, number and types of medications, their next appointment date as well as other clinical and demographic parameters was gathered. The patient's mobile phone number as well as mobile phone numbers of two close family members was recorded. Patients were then contacted through their mobile phones in day 7-, day 14- and day 30- post discharge and inquiry on their clinical status was made. Data entry and analysis was done using SPSS for windows version 19. The study obtained ethical approval from MUHAS Directorate of Research and publication and all patients signed an informed consent form before enrollment into the study. **Results:** A total of 164 HF patients were admitted during the study period, of these 4 (2.4%) declined to participate, 3 (1.8%) could not establish a phone number and 26 (15.8%) died before discharge leaving l3l (79.9%) patients for follow-up. The mean age was 45:1: 19 years (ranged from 11 - 90 years) and 74 (56.5%) were women. The most common causes of heart failure were hypertensive heart disease (37.4%), cardiomyopathies (32.8%) and rheumatic heart disease (21.4%). On admission majority of the patients were in New York Heart Association class IV (90.1%), and on average patients spent 93:4 days (range 1 - 40 days) in the ward before discharge. The proportion of patients that could be contacted were 96.2%, 94.7% and 93.9% on day 7-, 14- and 30-

post discharge, respectively. Over 90% of the contacted patients gave valuable information regarding their clinical status. Twenty percent of the patients initiated a contact with the researcher reporting worsening of their symptoms. **Conclusion:** Majority of HF patients can be contacted and provide valuable clinical _ information through mobile phones within a month post discharge from MNH. Structured telephone monitoring could be used as a tool to follow up I-IF patients in a resource-poor country like Tanzania.

324. **Mmbando B, Mgaya J,Nkya S, Soka D, Rwezaula S, Kaaya E, Cox S, Jeffries N, Geller N, Makani J Effect of coexistence of sickle and fetal hemoglobin on malaria in Tanzania, *3rd MUHAS Scientific Conference*, 2015.**

Background: Tanzania faces the dual burden of malaria and sickle cell disease (SCD). Although success has been achieved in reducing burden of disease, malaria continues to pose a significant public health threat. In addition, Tanzania has one of the highest annual births (8000-11000) of individuals with SCD in the world and the burden is projected to increase. Sickle haemoglobin (HbS) and foetal hemoglobin (HbF) have been independently associated with malaria protection. However, the association of their co-existence with malaria is unknown. Objective: To determine the association between HbF and sickle status on malaria infection among patients attended at Muhimbili sickle cell in Dar-es-Salaam, Tanzania. Methods: The study was conducted between March 2004 and December 2013 at Muhimbili National hospital. The sickle status: AA, AS and SS, was determined using hemoglobin electrophoresis and High Performance Liquid Chromatography (HPLC). The levels of HbF were determined by HPLC. Malaria was diagnosed using rapid diagnostic test and/or blood slide (BS). Generalized estimating equations were used to compare levels of HbF and risk of malaria infection. **Results:** 2,415 individuals [AA 172(7.12%), AS 189(7.83%) and SS 2054(85.05%)] were screened for malaria infection. 12,900 visits were recorded with overall malaria prevalence of 1.2%. There was a significant difference in malaria prevalence in the three groups; AA 14.9%, AS 1.9% and SS 1.0% ($\chi 2(2) = 331$; $P<0.001$). The mean of HbF levels in individuals with malaria was lower at 4.7% compared 3.6% in the individuals without malaria ($z=3.87$; $p=0.001$). Adjusting for the effect of age and gender, mean square root (sqrt) ofHbF levels of AS individuals were significantly higher by 0.698

(95%CI: 0.133-1.263, P=0.015) in malaria infected compared to un-infected, while in AA, the levels were significantly lower in the malaria group by 0.393 (95%CI: 0.172-0.613; p<0.001). With increase in sqrt(HbF) by one, risk of malaria increased by 4.84 fold (95%CI: 2.38-9.82, P<0.001) in AS and 2.05(95%CI: 1.11–3.78, P=0.021) in SS compared to AA**.Conclusion**: Individuals with SS status were more protected against malaria compared to individuals with AS and AA status. In the absence of HbS, AA individuals with no malaria had a higher level of HbF, confirming protective effect of HbF. However, in the presence of both HbF and HbS, there was a trend of loss of protection against malaria, with an increase in HbF levels being associated with higher risk of malaria in AS and SS. To our knowledge, this is the first epidemiological study of this magnitude that reports an effect of co-existence of HbF and HbS on malaria.

325. **Mmbando B, Mgaya J, Cox SE, Mtatiro SN, Soka D, Rwezaula S, Meda E, Msaki E, Snow RW, Jeffries N, Geller NL. Negative Epistasis between Sickle and Foetal Haemoglobin Suggests a Reduction in Protection against Malaria. *PloS one*. 2015; 10(5):e0125929.**

Background: Haemoglobin variants, Sickle (HbS) and foetal (HbF) have been associated with malaria protection. This study explores epistatic interactions between HbS and HbF on malaria infection. **Methods:** The study was conducted between March 2004 and December 2013 within the sickle cell disease (SCD) programme at Muhimbili National Hospital, Tanzania. SCD status was categorized into HbAA, HbAS and HbSS using hemoglobin electrophoresis and High Performance Liquid Chromatography (HPLC). HbF levels were determined by HPLC. Malaria was diagnosed using rapid diagnostic test and/or blood film. Logistic regression and generalized estimating equations models were used to evaluate associations between SCD status, HbF and malaria. **Findings**: 2,049 individuals with age range 0-70 years, HbAA 311(15.2%), HbAS 241(11.8%) and HbSS 1,497(73.1%) were analysed. At enrolment, malaria prevalence was significantly higher in HbAA 13.2% compared to HbAS 1.24% and HbSS 1.34% (p<0.001). Mean HbF was lower in those with malaria compared to those without malaria in HbAA (0.43% vs 0.82%) but was the reverse in HbSS (8.10% vs 5.59%). An increase in HbF was associated with a decrease in risk of malaria OR=0.50 (95%CI: 0.28, 0.90; p=0.021) in HbAA, whereas for HbSS the risk of malaria increased OR=2.94 (1.44, 5.98; p=0.003). A

similar pattern was seen during multiple visits; HbAA OR=0.52 (0.34, 0.80; p=0.003) vs HbSS OR=2.01 (1.27, 3.23; p=0.003). **Conclusion:** Higher prevalence of malaria in HbAA compared to HbAS and HbSS confirmed the protective effect of HbS. Lower prevalence of malaria in HbAA with high HbF supports a protective effect of HbF. However, in HbSS, the higher prevalence of malaria with high levels of HbF suggests loss of malaria protection. This is the first epidemiological study to suggest a negative epistasis between HbF and HbS on malaria.

326. **Mmweteni AM. Combined effect of ‘‘mobile phone reminder messages and on job training guide’’ on skills retention 6 weeks post - newborn resuscitation training in Tanzania. Master of Public Health, *Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es salaam.***

Background: Failure to initiate and sustain breathing at birth (Birth asphyxia) is among the 3 main causes of mortality in newborn less than 28 days of life. In Tanzania, it is reported that 27% of all newborn deaths are due to birth asphyxia. Study Objectives: The aim of this study was to assess the combined effect of two retention strategies; ‘‘on job training guide and reminder text messages’’ on skills retention of healthcare providers, 6 weeks after newborn resuscitation training. Materials and **Methods:** A quasi experimental study involving Kigoma as an intervention region and Morogoro as control region was conducted. Baseline Objective Structured Clinical Examination (OSCE) scores, follow up OSCE scores and information on predictors of skills retention were collected. Univariate and bivariate analysis were done to compare change in OSCE scores over time and compared by intervention status. Multivariate analysis was done to examine for independent predictors of skills retention. **Results:** A total of 488 health care providers were recruited and interviewed in this study. The baseline mean OSCE score was 19.61 in the intervention region and 18.96 in the control region (p=0.061). Six weeks after the intervention, OSCE score in the intervention region decreased by 0.59 while that in the control region decreased by 0.75. The proportion of health care workers retaining the skills in the intervention arm decreased by 0.9 percentage point while that in the control region decreased by 2.9 percentage point among women (p=0.012). The corresponding decrease among men was 7.8 and 20.9 percentage point respectively (p<0.001). Predictors of newborn resuscitation skills retention included working in a

hospital, previous training in EmONC, ever conducted or observed resuscitation. Other predictors were having resuscitation equipment and resuscitation table in the delivery room. **Conclusion:** This study shows that it is feasible to apply combined innovative strategies to improve skills retention. Significant improvement in the skills retention 6 weeks post training was observed more in the intervention region than control region. Working in higher level facility; Prior exposure to resuscitation through training; Availability of educational package for simulated on job practice; Availability of resuscitation table in the delivery room and Frequent opportunity to conduct resuscitation or Observing resuscitation, were associated with improved skills retention 6 weeks post HBB training. **Recommendations:** This study recommends use of booster strategies to enhance retention of resuscitation skills among health care workers following training. For sustenance of resuscitation skills, trained health care workers should be provided with resuscitation equipment and newborn mannequins for simulated practice. All delivery rooms should have a designated table for resuscitation and to offer providers a place to practice the skill in a real situation.

327. **Mnanka SM. Assessing Implementation Of Artemisinin Based Combination Therapy Policy In Treatment Of Uncomplicated Malaria Among Private Medicines Outlets In Mwanza Region, Tanzania. Master of Science (Pharmaceutical Management*) Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: A combination of Artemether-lumefantrine (ALu) is recommended by Tanzania MoHSW as first line therapy for uncomplicated malaria while Sulphadoxine–pyrimethamine (SP) is recommended only for intermittent preventive treatment during pregnancy. Despite the change of the policy, SP is still being dispensed by private medicine outlets for treatment of uncomplicated malaria. **Objective:** To assess implementation of artemisinin based combination therapy policy in treatment of malaria among private medicines outlets in Mwanza region, Tanzania. **Methodology:** The study was a descriptive cross-sectional study, to capture quantitative data using structured questionnaires and simulated clients. Qualitative data were captured using focus group discussion. The study population was private medicine outlets i.e Pharmacies and ADDOs located in Nyamagana and Sengerema District. **Results:** Knowledge level of dispensers in private medicine outlets on ACT policy for treatment of uncomplicated

malaria was poor by 3.1% and good by 49.2%. Results revealed that 96.9% out of all medicines outlets participated in this study know that ALU is the first line medicine for treatment of uncomplicated malaria. During malaria patient simulation 9.7 % of outlets dispensed ALU to simulated client while 85.5% dispensed SP. Results showed that 90.6% of Pharmacies and 80% of ADDOs dispensed SP to simulated client even though SP is reserved for IPTp. **Conclusion and Recommendations:** The study concluded that majority of dispensers in private medicines outlets have moderate and good knowledge on ACT policy in treatment of uncomplicated malaria. However the knowledge does not predict the actual practice, SP is still dispensed for malaria treatment rather than being reserved for IPTp where patient demand for a single dose medicine is one of driving factor for irrational dispensing and use of SP. Therefore the study recommended that MoHSW and other stakeholders to conduct training and seminars for medicine dispensers of private outlets on malaria treatment and rational dispensing of anti malarial medicines.

328. **Mndeme OH. Quality Of Life of Post Hormonal Manipulation in Hormonal Refractory Prostate Cancer Patients in Dar es Salaam. Master of Medicine (General Surgery)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Introduction: Cancer of the prostate is the most common malignancy and the second most common cause of cancer deaths among American men. This is a disease of aging and is common in Africa where most patients present late. Treatment of prostate cancer is therefore often palliative, and impact on treatment quality of life (QOL) becomes very important. Androgen deprivation therapy (ADT) also known as hormone manipulation is the main stay of treatment choices and quality of life of this patients post hormonal manipulation should be known. **Objectives:** To explore change in quality of life post hormonal manipulation in prostate cancer patients. **Methodology:** A cross sectional descriptive study conducted among patients who present with recurrent symptoms of advanced prostate cancer three months post hormonal manipulation in the department of surgery Muhimbili National Hospital, Ocean Road Cancer Institute and Tumaini Hospital in Dar es salaam. Three quality of life domains were used Physical health, psychological functioning and self care .Data was collected from interview, patient's notes and patient's or relative's cellular phone numbers were recorded to facilitate data collection. Data analysis was done using SPSS soft ware. **Results:** Fifty four patients

were enrolled in the study with mean age 72.6 years and range from 52-86 years. I n this particular study, there is a decrease in quality of life across three domains (psychological functioning, physical functioning and daily activity performance) in HRPC patients.**Conclusion:** There is decrease QOL in physical health, psychological functioning and self care in patients with HRPC post hormonal manipulation. **Recommendations:** 1) Multicentre study should be done to further explore QOL issues in patients with HRPC. 2) Further studies are recommended in HRPC to determine whether QOL deterioration is related to therapy, natural disease progression or combination of treatment and disease progression. 3) Clinician should ask quality of life issue in patients with hormonal refractory prostate cancer.

329. **Modlin CE, (et al.) "Nutritional Deficiencies and Food Insecurity among HIV-infected Children in Tanzania."** ***International Journal of MCH and AIDS (IJMA). 2015;*** **2(2): 220-228.**

Background: Poor nutrition has been associated with impaired immunity and accelerated disease progression in HIV- infected children. The aim of this study was to quantify the levels of nutrient intake in HIV-infected children and compare these to standard recommendations. **Methods:** We surveyed HIV-infected Tanzanian children enrolled in a pediatric care program that provided routine nutritional counseling and vitamin supplementation. We obtained anthropometric measurements and determined 24-hour macronutrient and micronutrient intakes and food insecurity. Values were compared to recommended nutrient intakes based on age and gender. **Results:** We interviewed 48 pairs of children and their caregiver(s). The age of the child ranged from 2-14 years; median age 6 and 60% female. The median weight-for-height z-score for children ≤ 5 years was 0.69 and BMI-for-age z-scores for children >5 were -0.84. Macronutrient evaluation showed that 29 (60%) children were deficient in dietary intake of energy; deficiency was more common in older children (p=0.004). Micronutrient evaluation shows that over half of study subjects were deficient in dietary intake of vitamin A, vitamin D, vitamin E, thiamine, riboflavin, niacin, folate, vitamin B12, and calcium. Food insecurity was reported by 20 (58%) caregivers. **Conclusions and Public Health Implications:** The diets of many HIV-infected children at a specialized treatment center in Tanzania do not meet recommended levels of macro- and micro nutrients. Food

insecurity was a contributory factor. Enhanced dietary counseling and provision of macro- and micro-nutrient supplements will be necessary to achieve optimal nutrition for most HIV-infected children in resource-poor regions.

330. Moen K, Mmbaga E, Mpembeni R, Leshabari M. Emic perspectives on community-based HIV prevention work among MSM in Dar es Salaam. *3rd MUHAS Scientific Conference,* 2015.

Background: From a public health perspective, the high prevalence of HIV among men who have regular or occasional sex with other men in Dar es Salaam (22.2 per cent) calls for a strengthening of HIV prevention programming among such men. **Objectives:** Significantly, a nascent grassroot groups are organizing against HIV is currently emerging among MSM themselves. The objective of this explorative study is to identify, describe and analyse these emerging community-based efforts. **Methodology:** This is an explorative ethnographic study where data are produced mainly through participant observation and qualitative interviewing. The observational data are supplemented with dialogical interviews. **Results:** Following Appadurai, this paper discusses the 'landscapes' of people, ideas, resources, technologies and media reporting that contribute to shape nascent community-based HIV prevention work in Dar es Salaam from the emic perspectives of the men and community-based groups that bring it into being. We map out prominent discourses on community-based organising against HIV in this socio-cultural context, describe ways in which work is carried out on the ground, and identify issues that are perceived to facilitate and hinder community-based HIV prevention. **Conclusions:** Community-based organising among MSM in Tanzania is of considerable public health interest in part because it pertains to a population subgroup for which very little systematic HIV-preventative work has so far been available, and in part because it is work which posits those at potential risk of HIV as performers of – and not only as recipients and/or targets of – HIV prevention. Actors in the community-based response have profound insight into a host of crucial contextual issues for HIV prevention, but often lack familiarity with biomedical discourses on HIV and HIV prevention. We argue that there is a strong need for increased collaboration between community-based groups and the field of public health.

331. **Mohamed H, Brown J, Njee RM, Clasen T, Malebo HM, Mbuligwe S. Point-of-use chlorination of turbid water: results from a field study in Tanzania. *Journal of water and health.* 2015 Jun 1; 13(2):544-52.**

Household-based chlorine disinfection is widely effective against waterborne bacteria and viruses, and may be among the most inexpensive and accessible options for household water treatment. The microbiological effectiveness of chlorine is limited, however, by turbidity. In Tanzania, there are no guidelines on water chlorination at household level, and limited data on whether dosing guidelines for higher turbidity waters are sufficient to produce potable water. This study was designed to assess the effectiveness of chlorination across a range of turbidities found in rural water sources, following local dosing guidelines that recommend a 'double dose' for water that is visibly turbid. We chlorinated water from 43 sources representing a range of turbidities using two locally available chlorine-based disinfectants: WaterGuard and Aquatabs. We determined free available chlorine at 30 min and 24 h contact time. Our data suggest that water chlorination with WaterGuard or Aquatabs can be effective using both single and double doses up to 20 nephelometric turbidity units (NTU), or using a double dose of Aquatabs up to 100 NTU, but neither was effective at turbidities greater than 100 NTU.

332. **Mohan D, Gupta S, LeFevre A, Bazant E, Killewo J, Baqui AH. Determinants of postnatal care use at health facilities in rural Tanzania: multilevel analysis of a household survey. *BMC pregnancy and childbirth*. 2015; 15(1):1.**

Background: Postnatal care (PNC) for the mother and infant is a neglected area, even for women who give birth in a health facility. Currently, there is very little evidence on the determinants of use of postnatal care from health facilities in Tanzania. **Methods:** This study examined the role of individual and community-level variables on the use of postnatal health services, defined as a check up from a heath facility within 42 days of delivery, using multilevel logistic regression analysis. We analyzed data of 1931 women, who had delivered in the preceding 2–14 months, from a two-stage household survey in 4 rural districts of Morogoro region, Tanzania. Individual level explanatory variables included i) Socio-demographic factors: age, birth order, education, and wealth, ii) Factors related to pregnancy: frequency of antenatal visits, history of complications, mode of

delivery, place of delivery care, and counseling received. Community level variables included community levels of family planning, health service utilization, trust, poverty and education, and distance to health facility. **Results:** Less than one in four women in Morogoro reported having visited a health facility for postnatal care. Individual-level attributes positively associated with postnatal care use were women's education of primary level or higher [Odds Ratio (OR) 1.37, 95 % Confidence Interval (CI) 1.04–1.81], having had a caesarean section or forceps delivery (2.95, 1.8–4.81), and being counseled by a community health worker to go for postnatal care at a health facility (2.3, 1.36–3.89). Other positive associations included those recommended HIV testing for baby (1.94, 1.19–3.15), and whose partners tested for HIV (1.41, 1.07–1.86). High community levels of postpartum family planning usage (2.48, 1.15–5.37) and high level of trust in health system (1.77, 1.12–2.79) were two significant community-level predictors. Lower postnatal care use was associated with having delivered at a hospital (0.5, 0.33–0.76), health center (0.57, 0.38–0.85), or dispensary (0.48, 0.33–0.69), and having had severe swelling of face and legs during pregnancy (0.65, 0.43–0.97). **Conclusions:** In the context of low postnatal care use in a rural setting, programs should direct efforts towards reaching women who do not avail themselves of postnatal care as identified in our study.

333. **Mosha I, Frumence G, Chitama D, Chebeti J, George A, Killewo J. Barriers facing health workers in providing Family Planning services in rural areas: A case of Morogoro Region Tanzania. *3rd MUHAS Scientific Conference, 2015.***

Background: Health providers are important in providing family planning commodities to clients for spacing or limiting birth. Knowing and addressing barriers facing health providers when providing family planning is vital in achieving the fertility decline goal. **Methods:** In depth interviews were used to collect data among twelve health providers working in Reproductive and Child Health clinics at the facilities in three districts of Morogoro region in Tanzania. **Results:** The results showed that health providers face different types of barriers when providing family planning to clients. This included misconception about family planning methods, secret use of family planning by women, need to provide quick services to secret users of family planning, lack of male partner participation in family planning clinics, running out of stock for family planning

methods and lack of knowledge to offer permanent family planning methods. **Conclusion:** Barriers facing health providers in providing family planning should be addressed for the effective and sustainable use of family planning in Tanzania.

334. **Mosha MR. Factors associated with male partner involvement in prevention of mother to child transmission (pmtct) of HIV in Dar es salaam. Master of Public Health,** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es Salaam*****.**

Background: In Tanzania participation of men in the PMTCT program remains low despite the progress registered in the implementation of the program. Little is known on barriers and facilitators of male involvement in PMTCT in peri-urban areas of Kinondoni Municipal. It is this gap in knowledge that this study intended to fill. Objectives: The study aimed at identifying factors associated with male partner involvement in the prevention of mother to child transmission (PMTCT) of HIV in peri-urban areas of Kinondoni Municipal specifically Mabwepande and Boko. **Methodology:** A descriptive, cross-sectional study design was used whereby the 373 participants completed the survey. A questionnaire was administered to men at the health care facility and catchment areas and in depth interviews were conducted with health staff involved in the provision of PMTCT services. Descriptive and multivariate analysis of quantitative data was done using STATA version 11 where frequencies and percentages have been presented in tables. Analysis of qualitative data was base on thematic analysis approach. **Results:** Results have shown that about (50.4%) of the participants has moderate knowledge on the provision of PMTCT services. About (60.05%) of the participants were able to point out that transmission may occur during pregnancy. Furthermore, about 70% were aware that HIV transmission can occur during delivery. Uses of C-Section as well as ARVs were noted by participants as among the ways to reduce HIV transition from the mother to the child. Participants with medium and high knowledge on the PMTCT were more likely to be involved in the PMTCT ($p<0.001$), as well as participants with positive attitude toward PMTCTC ($p<0.05$). Barriers to male involvement in PMTCT were found to be: the long waiting time at the clinic; an individual being busy; poor perception that antenatal care was a woman's activity and that women are care takers while men are bread seekers have been a hindrance in the uptake of the PMTCT. **Conclusion:** This

study has identified barriers to and facilitators of male involvement in PMTCT. Addressing the barriers and capitalizing on the enablers of male involvement may be key to prevention of HIV infection among children.

335. **Moshy J, Karpal SS, Sira SO, Arnold A. "Platelets Levels before and after Surgical Intervention in Patients with Oral and Maxillofacial Tumors at MNH, Tanzania."*Surgical Science.* 2015: 6(01)**

Background: There are documented effects of platelets on the solid tumors which need further study. The elevated platelet counts have been described for majority of cancers. There is inadequate information of effect of benign and malignant oral and maxillofacial tumors on the regulation of platelets. The aim of this study was to investigate the changes in platelet counts among patients with oral and maxillofacial benign and malignant tumors following surgical interventions. **Methods:** A descriptive postoperative study was done whereby patients with benign and malignant oral and maxillofacial tumors who met the inclusion criteria were included. The included patients were those who had no history of blood transfusion prior, during or after surgery, not on hemoglobin-boosting or bone marrow suppressing medications, not seropositive to human immunodeficiency virus also without clinical findings suggestive of lymphadenopathy, splenomegaly, ecchymosed and petechiae. Demographic data, Platelet counts and hemoglobin levels before and after surgery were documented and analyzed by chi-square test and values were considered to be significant if $p < 0.05$. **Results:** A total of 61 patients were included in the study. The mean age of participants was 37.03 ± 16.6 years with range of 7 to 77 years. Majority 82.5% (n = 52) had benign tumors with a leading diagnosis of ameloblastoma followed by ossifying fibroma. In general there was an increase of platelet counts following surgery from the mean of 276.38 ± 109.40 K/uL to 308.51 ± 117.24 K/uL. Looking at benign and malignant separately, following surgery there was an increase of platelet counts for benign tumors (278.87 ± 106.37 to 305.96 ± 123.12) but a decrease for malignant tumors group (282.33 ± 147.03 to 232 ± 78.48). The hemoglobin level changed from the mean of 12.60 ± 1.71 g/dl before surgery to 11.69 ± 1.70 g/dl after surgery. **Conclusion:** The mean postoperative increase in platelet counts in benign and malignant tumors was due to healing process of the wound following surgery while the postoperative decrease in platelets counts in malignant tumors was due to effect of tumor

removal which diminished the production of platelets activating factors. Malignant tumors produce platelets activating factors which are necessary for them to grow. Also, the difference in postoperative platelets counts in benign and malignant oral and maxillofacial tumors could be attributed by different biological behavior of benign and malignant tumors and hence different interactions of platelets to these tumors.

336. Moshy J, Sohal KS, Owibingire SS, Augustino A. **Platelets Levels before and after Surgical Intervention in Patients with Oral and Maxillofacial Tumors at *Scientific Research Publishing."Platelets* 2015.**

Background: There are documented effects of platelets on the solid tumors which need further study. The elevated platelet counts have been described for majority of cancers. There is inadequate information of effect of benign and malignant oral and maxillofacial tumors on the regulation of platelets. The aim of this study was to investigate the changes in platelet counts among patients with oral and maxillofacial benign and malignant tumors following surgical interventions. **Methods:** A descriptive postoperative study was done whereby patients with benign and malignant oral and maxillofacial tumors who met the inclusion criteria were included. The included patients were those who had no history of blood transfusion prior, during or after surgery, not on hemoglobin-boosting or bone marrow suppressing medications, not seropositive to human immunodeficiency virus also without clinical findings suggestive of lymphadenopathy, splenomegaly, ecchymosed and petechiae. Demographic data, Platelet counts and hemoglobin levels before and after surgery were documented and analyzed by chi-square test and values were considered to be significant if $p < 0.05$. **Results:** A total of 61 patients were included in the study. The mean age of participants was 37.03 ± 16.6 years with range of 7 to 77 years. Majority 82.5% (n = 52) had benign tumors with a leading diagnosis of ameloblastoma followed by ossifying fibroma. In general there was an increase of platelet counts following surgery from the mean of 276.38 ± 109.40 K/uL to 308.51 ± 117.24 K/uL. Looking at benign and malignant separately, following surgery there was an increase of platelet counts for benign tumors (278.87 ± 106.37 to 305.96 ± 123.12) but a decrease for malignant tumors group (282.33 ± 147.03 to 232 ± 78.48). The hemoglobin level changed from the mean of 12.60 ± 1.71 g/dl before surgery to 11.69 ± 1.70 g/dl after surgery. **Conclusion:** The mean postoperative increase in platelet counts in benign and

malignant tumors was due to healing process of the wound following surgery while the postoperative decrease in platelets counts in malignant tumors was due to effect of tumor removal which diminished the production of platelets activating factors. Malignant tumors produce platelets activating factors which are necessary for them to grow. Also, the difference in postoperative platelets counts in benign and malignant oral and maxillofacial tumors could be attributed by different biological behavior of benign and malignant tumors and hence different interactions of platelets to these tumors.

337. **Moshy J. "Ameloblastoma in Tanzania: A retrospective analysis of histological records."** ***Tanzania Dental Journal.*** **2015*:* 9(2); 2-4.**

World-wide, ameloblastoma have been discussed in relation and modalities of treatment. In Tanzania, cases of ameloblastoma are seen but no data is available to quantify the magnitude of the disease within the community. The present study aims at describing the occurrence, sex, age and regional distribution of ameloblastoma cases seem from June 1989 to June 1997 in Tanzania.' The pathology records in the Department of Oral Surgery and Pathology, Faculty of Dentistry, Muhimbili University College of Health Sciences, were examined for all cases of oral and maxillofacial tumoursoccuring over that period. The ameloblastoma cases were analyzed for age, sex, anatomical distribution, clinical features, regional distribution and treatment methods. Only cases confirmed by tissue biopsy were included in the study. Out of 384 oral and maxillofacial tumours, 18.2% (70) were ameloblastoma. Males (58.6%) were affected more than females (41.4%). Most of the ameloblastomas were found in the mandible (97.1 %) in the molar/angle regions (57.1 %) and 20% were in the incisors/canine areas and occurred in the third and fourth decades of life. Fourteen regions out of twenty regions in Tanzania recorded some cases of ameloblastoma, but majority of the cases were from Dar es Salaam (29.6%), Mbeya (18.5%), and Kilimanjaro regions (9.3%). Ameloblastoma in this study occurs predominately in the molar/angle and incisors/canine areas of the mandible with men being more affected than women. Radical excision entailing partial/total mandibulectomy or maxillectomy gave better results.

338. **Moyo S, (et al.) "Identification of VIM-2-producing Pseudomonas aeruginosa from Tanzania is associated with sequence types 244 and 640 and the location of blaVIM-**

2 in a TniC integron." ***Antimicrobial agents and chemotherapy*****. 2015; 59(1): 682-685. 2015.**

Epidemiological data on carbapenemase-producing Gram-negative bacteria on the African continent are limited. Here, we report the identification of VIM-2-producing Pseudomonas aeruginosa isolates in Tanzania. Eight out of 90 clinical isolates of P. aeruginosa from a tertiary care hospital in Dar es Salaam were shown to harbor $bla_{\text{VIM-2}}$. The $bla_{\text{VIM-2}}$-positive isolates belonged to two different sequence types (ST), ST244 and ST640, with $bla_{\text{VIM-2}}$ located in an unusual integron structure lacking the 3′ conserved region of *qacΔE1-sul1*.

339. Mpembeni R, Bhatnagar A, LeFevre A, Chitama D, Urassa D, Semu H, Mondea P, Killewo J, Kilewo C, Baqui G. Motivation and Job Satisfaction of Community Health Workers in Morogoro Region, Tanzania. ***3rd MUHAS Scientific Conference,*** **2015.**

Background: In 2012, Tanzania approved national guidelines for an integrated maternal, newborn, and child health community health worker (CHW)- the frontline for Tanzania's community health system. To support retention and performance, as well as to understand CHW needs as community based providers, this study developed contextually adapted scales to measure job satisfaction and motivation. **Methods**: A census of all CHWs that received training by July 2013 was undertaken in five districts of Morogoro region. CHW satisfaction was assessed through 27 items covering training and service provision; equipment and supplies; supervision; job relations and remuneration. Motivation was assessed through 29 indicators including (a) reasons why you are a CHW; (b) value in the eyes of society and health workers; and (c) workload. Content validity was measured through a parallel qualitative study conducted in the same setting. Reliability tests and factor analysis were used to simplify the scales and compute outcome indices.**Results:** A total of 228 of 238 CHWs were interviewed in their communities between September and October of 2013. Factor analysis of the job satisfaction scale identified six underlying factors. Ranging from those most problematic (transport and incentives) to those mostly satisfied (supervision, training, availability of registers and community respect). While factor analysis did not yield a similar result for the motivation scale, parallel qualitative

analysis helped to identify commonalities. Differences by sex were not statistically significant, but older and more educated CHWs were more satisfied with incentives, supervision and community respect than other CHWs. **Conclusion**: As efforts gain momentum to rollout a national cadre of CHWs, improved understanding of CHWs as people with heterogeneous needs and ambitions is vital for ensuring sustainability of the program. Study findings highlight areas for programmatic improvement (transport and incentives) and demonstrate the important role of communities supporting CHWs.

340. **Mpembeni R, Bhatnagar A, Chitama D. "Motivation and satisfaction among community health wor kers in Morogoro Region, Tanzania: nuanced needs and varied ambitions."** ***Human resources for health.*** **2015.** ***13(1): 44.***

Background: In 2012, the Ministry of Health and Social Welfare (MOHSW), Tanzania, approved national guidelines and training materials for community health workers (CHWs) in integrated maternal, newborn and child health (Integrated MNCH), with CHWs trained and deployed across five districts of Morogoro Region soon after. To informfuture scale up, this study assessed motivation and satisfaction among these CHWs. **Methods:** A survey of all CHWs trained by the Integrated MNCH Programme was conducted in the last quarter of 2013. Motivation and satisfaction were assessed using a five-point Likert scale with 29 and 27 items based on aidentify literature review and discussions with CHW programme stakeholders. Exploratory factor analysiswas conducted tomotivation and satisfaction determinants **Results:** Out of 238 eligible CHWs, 96 % were included in the study. Findings showed that respondents were Motivated to become CHWs due to altruism (work on MNCH, desire to serve God, work hard) and intrinsic needs (help community, improve health, pride) than due to external stimuli (monetary incentives, skill utilization,community respect or hope for employment). CHWs were satisfied by relationships with health workers andcommunities, job aids and the capacity to provide services. CHWs were dissatisfied with the lack of transportationcommunication devices and financial incentives for carrying out their tasks. Factors influencing motivation andsatisfaction did not differ across CHW socio-demographic characteristics. Nonetheless, older and less educatedCHWs were more likely to be motivated by altruism, intrinsic needs and skill utilization, community respect andhope for employment. Less educated CHWs were

more satisfied with service and quality factors and more wealthyCHWs satisfied with job aids **Conclusion and recommendations:** A combination of financial and non-financial incentives is required to supportmotivation and satisfaction among CHWs. Although CHWs joined mainly due to their altruistic nature, they becamediscontented with the lack of monetary compensation, transportation and communication support received. Withthe planned rollout of the national CHW cadre, improved understanding of CHWs as a heterogeneous group withnuanced needs and varied ambitions is vital for ensuring sustainability.

341. **Mpinda C**, **Wangwe P**, **Mselle T**. Cytokines profile of women with or without pre-eclampsia in Dar es Salaam, Tanzania. ***3rd MUHAS Scientific Conference,*** **2015.**

Background: Pre-eclampsia is one of the severe complications of pregnancy which leads to maternal mortality and morbidity. The etiology of preclampsia is not clearly understood, however, studies indicate that it is a multifactorial including abnormal cytokines profiles. **Aim:** The goal of this study was to examine the cytokine profile among pregnant women, with or without pre-eclampsia. **Method:** The 134 women recruited were divided into four groups: pre eclamptic women (n=35), eclampsia women (n=10), normal pregnant (n=45) and non-pregnant (n=44). The BMI, and the amounts of IL-4, IL-10, TNF-α and IFN-γ in peripheral blood were determined by ELISA (Abcam plc, UK). **Results:** The amounts of IFN-γ, TNF-α and IL-10 were significantly higher in women with pre-eclampsia and eclampsia compared to non-pregnant and women with normal pregnancy. However, the level of IL-4 was significantly higher in women with normal pregnancy compared to non-pregnant, pre-eclampsia and eclampsia.**Conclusion:** These findings indicate increased production of IFN-γ, IL-10 and TNF-α in pre-eclampsia and eclampsia than in normal pregnancy. The dramatic decrease in IL-4 during pregnancy could serve as a predictor of pre-eclampsia.

342. **Mponela MJ, Oleribe OO, Abade A, (et al.) "Post exposure prophylaxis following occupational exposure to HIV: a survey of health care workers in Mbeya, Tanzania, 2009-2010."** ***The Pan African medical journal.*** **2015; 21.**

Introduction: approximately, 1,000 HIV infections are transmitted annually to health care workers (HCWs) worldwide from occupational exposures. Tanzania HCWs

experience one to nine needle stick injuries (NSIs) per year, yet the use of post-exposure prophylaxis (PEP) is largely undocumented. We assessed factors influencing use of PEP among HCWs following occupational exposure to HIV. **Methods:** A cross-sectional study was conducted in Mbeya Referral Hospital, Mbozi and Mbarali District Hospitals from December 2009 to January 2010 with a sample size of 360 HCWs. Participants were randomly selected from a list of eligible HCWs in Mbeya hospital and all eligible HCWs were enrolled in the two District Hospitals. Information regarding risk of exposure to body fluids and NSIs were collected using a questionnaire. Logistic regression was done to identify predictors for PEP use using Epi Info 3.5.1 at 95% confidence interval. **Results:** Of 291 HCWs who participated in the study, 35.1% (102/291) were exposed to NSIs and body fluids, with NSIs accounting for 62.9% (64/102). Exposure was highest among medical attendants 38.8% (33/85). Out of exposed HCWs, (22.5% (23/102) used HIV PEP with females more likely to use PEP than males. Reporting of exposures (OR=21.1, CI: 3.85-115.62) and having PEP knowledge (OR =6.5, CI: 1.78-23.99) were significantly associated with using PEP. **Conclusion:** Despite the observed rate of occupational exposure to HCWs in Tanzania, use of PEP is still low. Effective prevention from HIV infection at work places is required through proper training of HCWs on PEP with emphasis on timely reporting of exposures.

343. **Mrema EJ, Ngowi AV, Mamuya SH. Status of Occupational Health and Safety and Related Challenges in Expanding Economy of Tanzania. *Annals of global health*. 2015; 4(81):538-47.**

Introduction: Occupational health and safety is related with economic activities undertaken in the country. As the economic activities grow and expand, occupational injuries and diseases are more likely to increase among workers in different sectors of economy such as agriculture, mining, transport, and manufacture. This may result in high occupational health and safety services demand, which might be difficult to meet by developing countries that are prioritizing economic expansion without regard to their impact on occupational health and safety. **Objective:** To describe the status of occupational health and safety in Tanzania and outline the challenges in provision of occupational health services under the state of an expanding economy. **Findings:** Tanzania's economy is growing steadily, with growth being driven by communications,

transport, financial intermediation, construction, mining, agriculture, and manufacturing. Along with this growth, hazards emanating from work in all sectors of the economy have increased and varied. The workers exposed to these hazards suffer from illness and injuries and yet they are not provided with adequate occupational health services. Services are scanty and limited to a few enterprises that can afford it. Existing laws and regulations are not comprehensive enough to cover the entire population. Implementation of legislation is weak and does not protect the workers. **Conclusion**: Most Tanzanians are not covered by the occupational health and safety law and do not access occupational health services. Thus an occupational health and safety services strategy, backed by legislations and provided with the necessary resources (competent experts, financial and technological resources), is a necessity in Tanzania. The existing legal provisions require major modifications to meet international requirements and standards. OHS regulations and legislations need refocusing, revision, and strengthening to cover all working population. Capacities should be improved through training and research to enable enforcement. Finally the facilities and resources should be made available for OHS services to match with the growing economy.

344. **Mremi A. The histopathological diagnosis of nasopharyngeal carcinoma at Muhimbili National Hospital, Tanzania. Master (Anatomical Pathology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Undifferentiated nasopharyngeal carcinoma (NPC) may present with deceptive morphology which mimic lymphoid tumors. Crush artifacts in a biopsy interfere with the microscopic interpretation. While microscopy of H&E stained sections remains the cornerstone in diagnosis of NPC, Immunohistochemistry (IHC) with Cytokeratin (CK) and CD45 are useful adjuvants particularly when dealing with challenging and inadequate biopsies. **Objective:** To determine the use of a minimum IHC panel in improving the accuracy of the histopathological diagnosis of NPC. **Methodology:** This was a hospital based retrospective descriptive study whereby formalin-fixed, paraffin embedded (FFPE) tissue blocks of nasopharyngeal biopsies were retrieved, Hematoxylin and Eosine (H&E) sections made and reviewed. Out of these, challenging cases were selected for IHC staining with CK and CD45 monoclonal antibodies (Mabs). The reviewed H&E diagnoses as well as IHC findings were then

compared to the previous histopathological diagnosis which was based on H&E stain alone. **Results**: A total of 227 nasopharyngeal biopsies were retrieved out of which 204 (89.9%) were diagnostic; consisting 135 (66.1%) malignant and 69 (33.9%) benign lesions. Twenty three (10.1%) of the biopsies were inadequate. Out of 135 malignancies, 120 (88.9%) were NPC, [78(65%) males and 42(35%) females]. The mean and median age of patients with NPC was 46 and 42 years respectively, ranging from 9-88 years. Nasal obstruction and a cervical mass were the commonest presenting symptoms (66.7%; n=80/120) and (60.8%; n=73/120) respectively. Non-keratinizing undifferentiated carcinoma was the most common 98(81.7%) histological subtype. Crush artifacts were common and observed more in smaller biopsies (p=0.01). CK showed positivity and hence confirmed 48 (75%) of the challenging NPC cases and the remaining 16 (25%) were confirmed by CD45 to be malignant lymphomas. **Conclusion:** NPC is the most frequent condition seen among nasopharyngeal biopsies submitted to the Histopathology Unit at MNH, and its frequency appeared to be increasing during the study period. Majority of the NPC patients were males presenting between 4rd and 6th decade of their life whereby nasal obstruction and cervical lymphadenopathy being the commonest presenting symptoms. Furthermore, majority of biopsies showed crush artifacts while the minimum IHC panel showed that 25% of the cases previously diagnosed by H&E were not NPCs. This underlines the importance of this affordable CK and CD45 IHC panel in improving the definitive histopathological diagnosis particularly for challenging cases and/or inadequate biopsies. **Recommendations:** Improved nasopharyngeal biopsy taking will go a long way in improving the diagnostic accuracy. Inclusion of a minimum and inexpensive IHC panel will greatly help in achieving definitive histopathological diagnosis of difficult or challenging cases in resources limited settings.

345. **Mrisho M, Schellenberg D, Manzi F, Tanner M, Mshinda H, Shirima K, Msambichaka B, Abdulla S, Schellenberg J. Neonatal deaths in rural southern Tanzania: care-seeking and causes of death, *3rd MUHAS Scientific Conference*, 2015.**

Background: Neonatal deaths contribute to about a third of childhood mortality. Most of the causes for neonatal deaths are preventable with good antenatal and intrapartum care.**Objectives:** The study determined the causes of death and care-seeking prior to death in neonates based on interviews with relatives using a Verbal Autopsy

questionnaire. **Methodology:** Neonatal deaths were identified through a large household survey in 2007 in five rural districts of Lindi and Mtwara regions of southern Tanzania. Caregivers of a sample of 300 children reported to have died in the neonatal period and between 2004 and 2007 were visited and a verbal autopsy questionnaire was administered. **Results:** Of the 300 reported deaths, the Verbal Autopsy (VA) interview suggested that 11 were 28 days or older at death and 65 were stillbirths. The causes of the remaining confirmed neonatal deaths were prematurity (33%), birth asphyxia (22%) and infections (10%). The majority of deaths (69%). 147/214) occurred at home while the rest occurred at a health facility. Care-seeking in the final illness was more common in children who were born at a health facility (80% 59/74 vs. 24% 30/125) (p=0.001). The majority of births was at home and attended by unskilled assistants; there was no means to provide extra care for babies born premature. **Conclusion:** Efforts to increase awareness of health facility delivery and the importance of early care-seeking for a premature or sick neonate are likely to improve neonatal health.

346. **Msangi PP. Dust exposure and respiratory disorders among small scale gold miners in Nyamongo, Tanzania. Masters of Science Environmental and Occupational Health *Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Gold is the main gemstone mined in Nyamongo, Mara region in the Northern part of Tanzania. Small-scale mine workers in these mines are exposed to different levels of respirable dust leading to increased risk of developing respiratory symptoms. Few studies have been done to determine the level of exposure to respirable dust and assessed related respiratory symptoms among small scale mine workers in Tanzania. **Aim:** The main objective of this study was to determine respirable dust levels and assess respiratory disorders among small-scale gold miners in Tanzania**. Material and Methods:** Personal sampling of respirable dust was carried among 40 workers of different job categories in the small scale mine. Side Kick Casela pump connected to conductive plastic cyclone was used to collect dust samples. Gravimetric analysis of sample was used to quantify dust concentrations. A total of 132 workers were interviewed using questions adopted from British Medical Research Council respiratory symptom questionnaire. Respiratory symptoms, individual characteristics and occupation

history were solicited. Factors associated with respiratory symptoms were also included in the questionnaire. Results: Geometric mean concentration (mg/m3) of respirable dust was found to be high, (5.49±0.05) mg/m3, among crusher operators. About 94% of respondents reported to experience at least one respiratory health symptom with wheezing 91.7%, chest tightness 88.6%, cough 87.1%, shortness of breath 85.6% and phlegm 78%. Factors such as age (p-value = 0.018), duration of employment (p-value = 0.002), cigarette smoking (p-value = 0.009) and history of asthma (p-value = 0.007) were seen to associate significantly with occurrence of respiratory health symptoms among mine workers. **Conclusion:** The findings from this study show high personal respirable dust levels among crusher operators. Also it shows high prevalence of respiratory symptoms among small scale gold miners. Some factors (age, duration of employment, cigarette smoking and history of asthma) showed significant association in causing respiratory symptoms among miners. Follow up study to ascertain real causal effect relationship is recommended as this cross sectional study could not establish it.

347. **Mselle C. Factors Associated With Early Childhood Caries In 2-5 Year Olds Attending Dental Treatment At Muhimbili University Dental Clinic. *3rd MUHAS Scientific Conference,* 2015.**

Background: Dental caries in children aged below 5 years is termed as early childhood caries (ECC). Epidemiological data of 2008/2009 reported nearly 50% of preschool children in Dar es Salaam whereas 80% of children who sought dental care at the School of Dentistry, MUHAS January–June 2012 had ECC. This is a public health problem that needs to be addressed. **Aim:** To investigate factors associated with ECC. **Methods:** A Cross sectional study conducted among 2- 5 year olds who attended treatment at School of Dentistry, MUHAS from September 2012-March 2013. 182 children and their parents were recruited. WHO criteria (1997) and Silness- Löe Oral Hygiene Index (1964) were used for caries and oral hygiene status respectively. A questionnaire inquiring socio-demographic characteristics of parents and children, child oral hygiene practices, toothpaste uses, feeding practices and snacks frequencies was used **Results:** Girls were 51% of the studied children. The mean age and dmft were 3.78 and 6.79 respectively. At the level of bivariate analysis , older children (4-5 years); children reared by single mothers and children with poor oral hygiene had statistically significantly higher dmft

than their counterpart (□2 = 6.71, p = 0.01; □2 = 3.99, p = 0.05; □2= 3.85, p = 0.05). In logistic regression model children aged 4-5 years had higher Odds of having higher overall dmft than those aged 2-3 years [OR=2.77 (1.18-6.45), p=0.02], while children with poor oral hygiene had higher Odds of having higher dmft for anterior teeth than their counterparts [OR=2.51 (1.20 5.28),p=0.01]. “Infants feeding practices”; “assistance in tooth brushing”, “frequency of tooth brushing” and “use of tooth paste” had no significant association of having high/low caries experience. **Conclusion:** Poor oral hygiene, Child’s old age, and child being raised by a single mother were associated with higher caries experience.

348. **Mselle LT, Thecla WK. "Living with constant leaking of urine and odour: thematic analysis of socio-cultural experiences of women affected by obstetric fistula in rural Tanzania."** ***BMC women's health.*** **2015; 15(1): 107.**

Background: Obstetric fistula is a worldwide problem that affects women and girls mostly in Sub Saharan Africa. It is a devastating medical condition consisting of an abnormal opening between the vagina and the bladder or rectum, resulting from unrelieved obstructed labour. Obstetric fistula has devastating social, economic and psychological effect on the health and wellbeing of the women living with it. This study aimed at exploring social-cultural experiences of women living with obstetric fistula in rural Tanzania. **Methods** Women living with obstetric fistula were identified from the fistula ward at CCBRT hospital. Sixteen individual semi structured interviews and two (2) focus group discussions were conducted among consenting women. Interviews were transcribed verbatim and transcripts analysed independently by two researchers using a thematic analysis approach. Themes related to the experiences of living with obstetric fistula were identified. **Results** Four themes illustrating the socio-cultural experiences of women living with obstetric fistula emerged from the analysis of women experiences of living with incontinence and odour. These were keeping clean and neat, earning an income, maintaining marriage, and keeping association. Women experiences of living with fistula were largely influenced by perceptions of people around them basing on their cultural understanding of a woman. **Conclusion** Living with fistula reveals women’s day-to-day experiences of social discrimination and loss of control due to incontinence and odour. They cannot work and contribute to the family income, cannot satisfy their

husband's sexual needs and or bear children, and cannot interact with members of the community in social activities. Women experience of living with fistula was influenced by perceptions of people around them. In the eyes of these people, women who leak urine were of less value since they were not capable of carrying out ascribed social roles.

349. **Mselle LT, Thecla WK. "Perceived health system causes of obstetric fistula from accounts of affected women in rural Tanzania: a qualitative study."** ***African journal of reproductive health.*** **2015; 19(1): 124-132.**

Obstetric fistula is still a major problem in low income countries. While its main cause is untreated obstructed labour, misconceptions about it still persist. This study aimed at exploring and describing perceived health system causes of obstetric fistula from women affected by it in rural Tanzania. This exploratory qualitative study included twenty-eight women affected by obstetric fistula. Semi structured interviews and focus group discussions were held and thematic analysis used to analyse perceived health system causes of obstetric fistula from women's account. Perceived health system causes of obstetric fistula fundamentally reflected the poor quality of obstetric care women received at health care facilities relating to staff unaccountability, late referral, and torture by nurses. The women's perception emphasizes the importance of improving the quality of obstetric care provided by health care providers in health care facilities.

350. **Msengi H. Nurses' and Physicians' Experience Of Caring For Critically Ill Patients in Tanga Regional Referral Hospital Tanzania. Master of Science Nursing (Critical care and Trauma)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Nurses and Physicians at Tanga Regional Referral Hospital (TRRH) are responsible for efficiency care and management of the critically ill patients. Their carrier objectives as medical professionals should be accomplished by giving an optimal care to critically ill patients as patient's needs. Patients' needs are the requirement that is supposed to be met so as to improve their well-being and to address life threatening conditions or indicators which might endanger their lives, family as well as the community at large. In order to facilitate wellbeing and improvement of critically ill patients, the specific unit of caring these patients should be identified. Moreover,

equipment, drugs and supplies, specialized personnel in the field should be considered. **Material and Methods:** A qualitative descriptive design was used to explore experience of nurses and physician in caring for critically ill patient at TRRH. Nurses and Physicians experience and challenges were assessed through in-depth interviews. Study participants were 15, 10 nurses and 5 physicians who are working in 5 departments at TRRH. These Departments were surgical, medical, pediatrics, outpatient, obstetrics and gynecology. Purposive sampling was used to recruit the participants who had working experience of not less than three years from the selected departments. Analysis of data was guided by qualitative content analysis. **Results:** Four themes emerged from the data: be present and staying close, being powerless, failure to protect patient's privacy, lacking of caring ability. **Conclusions;** Nurses and Physicians at Tanga Regional, Referral, Hospital, faces multifaceted experiences when caring for critically ill patients. Because of not having a specific unit where these critically ill patients could be cared for, lack of equipment, supplies and medicine, and the lack of expertise in caring these patients, made them feel powerlessness in providing optimal care to critically ill patients at TRRH. The experience and challenges recognizes demand for strategies to improve efficiency management and optimal care for critically ill patients in the hospital. **Recommendations:** Short and long training on management of critically ill patients to nurses and physician are crucial to provide ability for these health professionals to assume their caring role effectively. Further, an equipped ICU should be established at the Regional hospital. Further study concerning care of critically ill patients in the ward to other regional hospital in Tanzania is recommended.

351. **Msofe AR. Association between breast cancer and HDL-C PLASMA levels in MENOPAUSAL and POST-MENOPAUSAL Women of Dar es Salaam, Tanzania. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences*.**

Background: Breast cancer is one of the major growing health problems in Tanzania and the world as a whole. In 2012, breast cancer claimed about 522,000 women lives worldwide. Breast cancer has been reported to increase rapidly in developing countries in recent years with change in life style being suggestive of probable causes, particularly westernization of life styles. The control of undesirable cholesterols like Triglycerides

and Low density lipoproteins and the increased level of good cholesterol which is High Density Lipoprotein (HDL) have significantly shown to reduce the risk of developing breast cancer in women. Its use as a screening tool in developing countries would be of great importance in reduction of morbidity and mortality caused by the disease. The method will attain its goal by early detection of breast cancer marker that is HDL-C and early treatment before the diseased has reached complex stages. HDL-C has been shown to increase the chance of developing breast cancer in post menopausal women when in low concentration. Most of the affected people with breast cancer are seen to be post-menopausal and its association with HDL is race-dependent. Thus studies involving various groups and in different countries are necessary to provide a global picture of the condition. Aim of the study: The main aim of the study was to assess the association between HDL-C and breast cancer and evaluate its suitability as a screening tool for breast cancer. **Methodology:** This study was done in 130 subjects aged 40 years and above, a cross-sectional study design that comprised of 65 breast cancer patients and 65 controls. Fasting venous blood were collected and stored in plain vacutainer tubes to obtain serum for subsequent analysis. Fasting serum HDL-C were detected and analyzed using automated enzymatic assays after placement in special cuvettes (Ausria II, Abbott, North Chicago, IL, USA) on a C.8000 auto analyzer). The study was conducted at Muhimbili National Hospital (MNH) and Ocean Road Cancer Institute (ORCI) in Dar es Salaam, Tanzania for a period between January 2015 and March 2015. The data were entered and analyzed using SPSS for Windows software (version 20.0. SPSS Inc Chicago, IL, USA). The association between independent variable (HDL-C) and dependent variable (breast cancer) was tested using Chi-square at 95% CI. A p-value of < 0.05 was considered significant for the tested categorical variables. The two by two tables were developed for presenting data obtained for testing the use of HDL-C as the screening tool. **Results:** Our study found significance differences in mean HDL-C between women with breast cancer and those without the disease ($p<0.05$).The study also found that breast cancer is associated with HDL-C levels among women of 40 years and above in Dar es Salaam (OR=17, 57; CI 95%: 2.24-138.10; $p<0.05$). Our study showed that increase in both stage of breast cancer and increase in chemotherapy cycles significantly lowers serum levels of HDL-C in perimenopausal women ($p<0.05$). This

study also revealed sensitivity of using HDL-C as the screening tool for breast cancer to be low while the tool seemed to have high specificity at 60mg/dl of HDL-C as a cutoff point for screening breast cancer in this group. **Conclusion:** The present study has shown that there is significant difference in mean HDL-C levels among perimenopausal women with and without breast cancer, signifying the association between HDL-C and breast cancer in perimenopausal women of Tanzania. Based on the finding from this study, it is suggestive that HDL-C can be used as a marker for screening breast cancer and that only when factors like genetic factors, cholesteryl ester transfer protein (CETP), environment, chronic alcoholism, treatment with oral estrogen replacement therapy, extensive aerobic exercise, smoking and treatment with niacin, statins or fibrates are taken into consideration.

352. **Msofe RA. Association between Breast Cancer and HDI-C Plasma Levels in Menopausal and Post-Menopausal Women of Dar Es Salaam, Tanzania. Master of Science Biochemistry,** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Breast cancer is one of the major growing health problems in Tanzania and the world as a whole. In 2012, breast cancer claimed about 522,000 women lives worldwide. Breast cancer has been reported to increase rapidly in developing costmaries in recent years with change in life style being suggestive of probable causes, particularly westernization of life styles. The control of undesirable cholesterols like Triglycerides and Low density lipoproteins and the increased level of good cholesterol which is High Density Lipoprotein (HDL) have significantly shown to reduce the risk of developing breast cancer in women. Its use as a screening tool in developing countries would be of great importance in reduction of morbidity and mortality caused by the disease. The method will attain its goal by early detection of breast cancer marker that is HDL-C and early treatment before the diseased has reached complex stages. HDL-C has been shown _ to increase the chance of developing breast cancer in post menopausal women when in low concentration. Most of the affected people with breast cancer are seen to be post menopausal and its association with HDL is race-dependent. Thus studies involving various groups and in different countries are necessary to provide a global picture of the condition. **Aim of the study:** The main aim of the study was to assess the association

between HDL-C and breast cancer and evaluate its suitability as a screening tool for breast cancer. **Methodology:** This study was done in 130 subjects aged 40 years and above, a cross- sectional study design that comprised of 65 breast cancer patients and 65 controls. Fasting venous blood were collected and stored in plain vacationer tubes to obtain serum for subsequent analysis. Fasting serum HDL-C were detected and analyzed using automated enzymatic assays after placement in special cuvettes (Ausria II, Abbott, North Chicago, IL, USA) on a C.8000 auto analyzer). The study was conducted at Muhimbili National Hospital (MNH) and Ocean Road Cancer Institute (ORCI) in Dar es Salaam, Tanzania for a period between January 2015 and March 2015. The data were entered and analyzed using SPSS for Windows software (version 20.0. SPSS Inc Chicago, IL, USA). The association between independent variable (HDL-C) and dependent variable (breast cancer) was tested using Chi-square at 95% CI. A p- value of < 0.05 was considered significant for the tested categorical variables. The two by two tables were developed for presenting data obtained for testing the use of HDL-C` l as the screening tool. **Results:** Our study found significance differences in mean HDL-C between women with breast cancer and those without the disease ($p<0.05$).The study also found that breast cancer is associated with HDL-C levels among women of 40 years and above in Dar es Salaam (OR=l7, 57; CI 95%: 2.24-138.10; $p<0.05$). Our study showed that increase in both stage of breast cancer and increase in chemotherapy cycles significantly lowers serum levels of HDL-C in premenopausal women ($p<0.05$). This study also revealed sensitivity of using HDL-C as the screening tool for breast cancer to be low while the tool seemed to have high specificity at 60mg/dl of HDL-C as a cutoff point for screening breast cancer in this group. **Conclusion:** The present study has shown that there is significant difference in mean HDL-C levels among premenopausal women with and without breast cancer, signifying the association between HDL-C and breast cancer in premenopausal women of Tanzania. Based on the finding from this study, it is suggestive that HDL-C can be used as a marker for screening breast cancer and that only when factors like genetic factors, cholesteryl ester transfer protein (CETP), environment, chronic alcoholism, treatment with oral estrogen replacement therapy, extensive aerobic exercise, smoking and treatment with niacin, statins or fibrates are taken into consideration.

353. **Msuya S, Msenga C, Kawala T, Matola E, Katabalwa M, Abdallah S.Participation of the Police Force in HIV Research in Collaboration with MUHAS. *3rd MUHAS Scientific Conference,* 2015.**

Background: HIV and AIDS continue to be major public health problems. The Police force in Dar es Salaam, under the Police Medical Service Unit, has been closely collaborating with Muhimbili University of Health and Allied Sciences (MUHAS) since early 1990's in various aspects of HIV research.**Objectives:** To describe HIV research activities undertaken by the Police force in collaboration with MUHAS. **Methods:** Epidemiological and Socio-behavioral studies have been conducted since mid 1990's. Subsequently the Police force collaborated with MUHAS in undertaking 2 HIV vaccine trials, is HIVS-03, TaMoVac-I and TaMoVac-II trials). Participations of Police Officers in all these activities ensured Voluntariness. **Results:** From the epidemiological studies, the overall HIV prevalence has declined from 14% in 1996 to 5.7% in 2004. The HIVS-03 trial drew all the 60 volunteers from members of the Police Force. The proportions of Police Officers enrolled in the TaMoVac-I and II vaccine trials at the Dar es Salaam site were 15.6% (15/96) TaMaVac 01 and 26% (5/19) TaMaVac 0II.Confidentiality has been maximally observed in all the research activities, and consequently there has been no report of an untoward violent reaction following HIV results disclosure.**Results:** from the various study findings have helped the Police force in designing informed strategies to curb the HIV epidemic, and the cooperation has led to capacity building in the force. **Conclusion:** The research collaboration between the Police Force in Dar es Salaam and MUHAS has been mutually beneficial in the efforts to control the HIV epidemic. We recommend further strengthening of the collaboration

354. **Mtaita C. Staying with or shifting from the private health insurer: the perception of individuals in group insurance medical schemes in dar es salaam, tanzania. Master of Public Health, *Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

Background: Private health Insurance (PHI) has gained increased attention in African Countries; however, it remains a critical challenge in most developing countries. Without efficient regulations, PHI market operates on profit basis through adverse selection, risk

selection and moral hazards leading to high cost of care. This study explored shifting from or staying with the Private Health Insurer as influenced by perception of individuals in group insurance medical scheme in Dar es Salaam. **Methods:** A cross sectional explorative study was conducted between January to April 2015 involving Corporate Clients in five PHI companies registered by Tanzania Insurance Regulatory Authority (TIRA) under the Ministry of Finance. A total of 423 Corporate Clients were involved in the study. Data was collected using a self – administered questionnaire and individual perception was assessed using a Likert scale. Open-ended questions were arranged in themes then assigned codes that represent the themes. The codes were explored then interpreted for findings. SPSS was used to analyze the data according to the research objectives to produce summary statistics. Multivariate logistic regression analysis was done to examine relationship between independent variables and shifting or staying among corporate clients with the private health insurer. Results: Study findings revealed that individual characteristics like age, gender, income and level of education have an influence on intention to stay with or shift from the private health insurer. Factory workers were more influenced to shift than desk job workers (p=0.021). There was insufficient knowledge on private health insurance, however, majority of respondent knew the benefits they receive and were satisfied with their current health insurer (p=0.003). Respondents had positive perception on the role of the insurer, broker, employer and service provider. However, this association was not statistically significant **Conclusion:** These findings imply that there is insufficient knowledge on private health insurance. Efforts should be taken to educate individuals in order to improve the level of understanding of PHI.

355. **Mtalitinya GS. Diagnosis And Preparation Of Patients Who Need Emergency Abdominal Surgery At Muhimbili National Hospital Master of Medicine (General Surgery)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: The outcome of emergency abdominal surgeries depends much on pre-operative preparation which mainly includes fluid and electrolyte therapy, antibiotics, supportive medications, use of nasogastric tube (NGT) and monitoring the progress of resuscitation measures and acting accordingly. It has been estimated that 60% of major abdominal surgery patients develop occult hypovolaemia and intraoperative gut

hypoperfusion due to inadequate resuscitation; both of these complications are linked to increases in morbidity and mortality. Data from National Confidential Enquiry into Perioperative Deaths (NCEPOD) report 2011 showed that, the 30 day mortality in those patients with inadequate pre-operative fluid management was 20.5% compared to 4.7% mortality in those with adequate pre-operative fluid therapy. Therefore there was a need of conducting this study at Muhimbili National hospital as it would highlight problems and challenges facing the health care providers in emergency settings. **Objective:** The aim of this study was to determine the diagnosis and preparation of patients who need emergency abdominal surgery at Muhimbili National hospital, in Dar-es-salaam, Tanzania. **Methodology:** A hospital-based descriptive cross-section study was conducted between March to November 2014 at Muhimbili National Hospital. All patients who met inclusion criteria were enrolled in the study after voluntary informed consent had been obtained. Confidentiality and privacy were assured. Data was gathered from patient's case notes and observation. Data was analyzed using SPSS version 16.0. Approval and permission to conduct the study was sought from Muhimbili University of Health and Allied Sciences and Muhimbili National Hospital. **Results:** In this study 21-30 years was found to be the commonest age group among patients who needed emergency abdominal surgery, with male predominance. Intestinal obstruction was the commonest diagnosis. Majority of the patients (86.3%) received a combination of intravenous ceftriaxone (1gm) and metronidazole (500mg) preoperatively with significant number of them (46.4%) received the last dose in more than one hour prior surgery. There was relative small amount of intravenous fluid given with regard to the path physiology of the common indications of emergency abdominal surgery seen in this study whereby most patients were expected to have ongoing dehydration which required at least 3liters stat of intravenous fluids. Only few traditional indicators were used to monitor progress of resuscitation despite their unreliability especially in critically ill with ongoing shock. Nasogastric tube (NGT) was inserted in more than half of the patients. **Conclusion and Recommendation:** There is a need to develop guideline on preoperative management of the patients who need emergency abdominal surgery with regard to: Timing of antibiotic use, type and dose, Fluid therapy, Use of nasogastric tube, Blood transfusion and Monitoring of resuscitation with action oriented.

356. **Mtatiro SN, Makani J, Mmbando B, Thein SL, Menzel S, Cox SE. Genetic variants at HbF-modifier loci moderate anemia and leukocytosis in sickle cell disease in Tanzania. *American journal of hematology*. 2015; 90(1):E1-4.**

Fetal hemoglobin (HbF) is a recognized modulator of sickle cell disease (SCD) severity. HbF levels are strongly influenced by genetic variants at three major genetic loci, Xmn1-HBG2, HMIP-2, and BCL11A, but the effect of these loci on the hematological phenotype in SCD, has so far not been investigated. In a cohort of individuals with SCD in Tanzania (HbSS and HbS/β° thalassemia, n = 726, aged 5 or older), HbF levels were positively correlated with hemoglobin, red blood cell (RBC) indices, mean corpuscular volume (MCV), and mean corpuscular hemoglobin (MCH), and negatively with white blood cell (WBC) and platelet counts (all $P < 0.0001$). We subsequently assessed the contribution of the three HbF modifier loci and detected diverse effects, including a reduction in anemia, leukocytosis, and thrombocytosis associated with certain HbF-promoting alleles. The presence of the 'T' allele at Xmn1-HBG2 led to a significant increase in hemoglobin ($P = 9.8 \times 10{-}3$) but no changes in cellular hemoglobin content. Xmn1-HBG2 'T' also has a weak effect decreasing WBC ($P = 0.06$) and platelet ($P = 0.06$) counts. The BCL11A variant (rs11886868-'C') increases hemoglobin ($P = 2 \times 10{-}3$) and one of the HBS1L-MYB variants decreases WBC values selectively ($P = 2.3 \times 10{-}4$). The distinct pattern of effects of each variant suggests that both, disease alleviation through increased HbF production, and 'pleiotropic' effects on blood cells, are involved, affecting a variety of pathways.

357. Mtatiro SN, Mgaya J, Singh T, Mariki H, Rooks H, Soka D, Mmbando B, Thein SL, Barrett JC, Makani J, Cox SE. Genetic association of fetal-hemoglobin levels in individuals with sickle cell disease in Tanzania maps to conserved regulatory elements within the MYB core enhancer. *BMC medical genetics*. 2015; 16(1):1.

Background: Common genetic variants residing near upstream regulatory elements for MYB, the gene encoding transcription factor cMYB, promote the persistence of fetal hemoglobin (HbF) into adulthood. While they have no consequences in healthy individuals, high HbF levels have major clinical benefits in patients with sickle cell disease (SCD) or β thalassemia. Here, we present our detailed investigation of HBS1L-

MYB intergenic polymorphism block 2 (HMIP-2), the central component of the complex quantitative-trait locus upstream of MYB, in 1,022 individuals with SCD in Tanzania. **Methods:** We have looked at 1022 individuals with HbSS or HbS/β0 in Tanzania. In order to achieve a detailed analysis of HMIP-2, we performed targeted genotyping for a total of 10 SNPs and extracted additional 528 SNPs information from a genome wide scan involving the same population. Using MACH, we utilized the existing YRI data from 1000 genomes to impute 54 SNPs situated within HIMP-2. **Results:** Seven HbF-increasing, low-frequency variants ($\beta > 0.3,\ p < 10{-}5,\ f \leq 0.05$) were located in two partially-independent sub-loci, HMIP-2A and HMIP-2B. The spectrum of haplotypes carrying such alleles was diverse when compared to European and West African reference populations: we detected one such haplotype at sub-locus HMIP-2A, two at HMIP-2B, and a fourth including high-HbF alleles at both sub-loci ('Eurasian' haplotype clade). In the region of HMIP-2A a putative functional variant (a 3-bp indel) has been described previously, but no such candidate causative variant exists at HMIP-2B. Extending our dataset through imputation with 1000 Genomes, whole-genome-sequence data, we have mapped peak association at HMIP-2B to an 11-kb region around rs9494145 and rs9483788, flanked by two conserved regulatory elements for MYB. **Conclusions:** Studies in populations from the African continent provide distinct opportunities for mapping disease-modifying genetic loci, especially for conditions that are highly prevalent there, such as SCD. Population-genetic characteristics of our cohort, such as ethnic diversity and the predominance of shorter, African-type haplotypes, can add to the power of such studies.

358. **Nkya MS, et al. "Genetic variants at HbF-modifier loci moderate anemia and leukocytosis in sickle cell disease in Tanzania."** ***American journal of hematology*****. 2015; 90(1): E1-E4.**

Fetal hemoglobin (HbF) is a recognized modulator of sickle cell disease (SCD) severity. HbF levels are strongly influenced by genetic variants at three major genetic loci, *Xmn1-HBG2*, *HMIP-2*, and *BCL11A*, but the effect of these loci on the hematological phenotype in SCD, has so far not been investigated. In a cohort of individuals with SCD in Tanzania (HbSS and HbS/β° thalassemia, *n* = 726, aged 5 or older), HbF levels were positively correlated with hemoglobin, red blood cell (RBC) indices, mean corpuscular volume

(MCV), and mean corpuscular hemoglobin (MCH), and negatively with white blood cell (WBC) and platelet counts (all $P < 0.0001$). We subsequently assessed the contribution of the three HbF modifier loci and detected diverse effects, including a reduction in anemia, leukocytosis, and thrombocytosis associated with certain HbF-promoting alleles. The presence of the 'T' allele at *Xmn1-HBG2* led to a significant increase in hemoglobin ($P = 9.8 \times 10^{-3}$) but no changes in cellular hemoglobin content. *Xmn1-HBG2* 'T' also has a weak effect decreasing WBC ($P = 0.06$) and platelet ($P = 0.06$) counts. The *BCL11A* variant (*rs11886868*-'C') increases hemoglobin ($P = 2 \times 10^{-3}$) and one of the *HBS1L-MYB* variants decreases WBC values selectively ($P = 2.3 \times 10^{-4}$). The distinct pattern of effects of each variant suggests that both, disease alleviation through increased HbF production, and 'pleiotropic' effects on blood cells, are involved, affecting a variety of pathways.

359. **Mtolera M. The role of abdominal ultrasound in the evaluation of patients clinically suspected of obstructive jaundice at MNH radiology department. MMed (Radiology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Obstructive jaundice refers to the yellowish discoloration of the skin and mucous membrane caused by obstruction of the biliary flow. There are several causes of biliary obstruction, the commonest causes being stones in the common bile duct, gall bladder stones, stricture, cancer of the head of pancreas and lymph nodes enlargement at the portal hepatis. The radiological modalities for determining the presence cause and level of obstruction includes USS, CT, and MRCP. **Objective:** To determine the role of abdominal ultrasound in the evaluation of patients with clinical obstructive jaundice at Muhimbili National Hospital (MNH) Radiology Department. **Materials and methods:** Descriptive cross-sectional study, with sample size of 138 patients who were clinically suspected of obstructive jaundice at MNH, Radiology department, from July 2014-March 2015. Data collection was done through written questionnaires and data was analysed by using computer program Statistical package for social science (SPSS). **Results:** Among the scanned patients, females were more 77(55.8%) than males 61(44.2%), and majority were in 51-70 age group with the total of 65 patients whereby females being 43(66.2%) and males 22(33.8%). 83 patients had sonographic features of obstruction however the cause could not be determined by ultrasound, of which female were 48(62.3%) and

males 35(57.4%)(Fisher's exact 0.602) . And 22 patients who were suspected to have obstructive jaundice had no sonographic evidence of obstruction, females being 12(15.6%) and males 10(16.5%)(p value 0.084). **Conclusion:** ultrasound is useful in ruling out the presence of obstruction however the role of ultrasound in determining the cause of obstruction is limited. **Recommendation:** Abdominal USS should still be used as initial modality since it can differentiate between obstructive and non obstructive (medical) jaundice, and can also determine the cause at times. Further evaluation by advanced modalities (CT and MRCP) in patients with obstructive jaundice since abdominal USS has a limited role in determining the cause of obstruction.

360. **Mtui RK. Utilization of Reproductive Health Services among Men in Mtwara Urban Distict Master of Public Health** ***Dissertation 2015.Muhimbili University of Health and Allied Sciences.***

Background: This study present utilization of reproductive health services among men in Mtwara urban district in Tanzania**. Aim** of this study is to explored more about men's I perceptions, attitudes, beliefs and experiences in utilizing reproductive health. The study specifically assesses the proportion of men utilize sexual and reproductive health services; to determine association between socio-demographic characteristics and men's utilization - of RH service; to determine association between men's knowledge on RH services and their utilization of RH services; and to determine association between men's attitude _ toward R.H services and their utilization of RH services. **Methods:** This is analytical study design. Quantitative method employed in this study in order to explore utilization of RH services among men. Simple random and purposive sampling methods were used to select 5 wards; 15 street and 120 males aged between 18-58 years, structured questioners used to collect information. **Results:** Of 120 respondents, 70 (58.3%) were aged 27- 49. Majority was aware of reproductive health services. More than 90% of men had negative attitude, which was associated with using of the reproductive health services, Married men were more likely to use Reproductive health services namely antenatal care (64%), Prevention from mother to child transmission (48%), and voluntary counseling and testing (49%) as compared to males who were cohabitating and single. Likewise, the men with formal education were also more likely to use reproductive health services than those with informal education. The common

hindrances to service utilization among men were lack RH knowledge, Negative attitudes towards RH services, and Men is uncomfortable to attend RH services with their partner's at health facilities. MPTCT (67%) and VCT (52%) services were more likely utilized with men compare to ANC (37%) and Condom (37%) services. **Conclusion:** Lack RH knowledge and social norms are unfavorable to supporting male attending for RH services; or accompanying their partners to the RH services. **Recommendation:** There is a need for interventions to enhance positive favorable attitude of men's seeking of reproductive health services. Strengthen outreach services are crucial for men in using reproductive health services.

361. **Muganyizi P, Ishengoma J, Kanama J, Kikumbih N, Mwanga F, Killian R, McGinn E. An analysis of pre-service family planning teaching in clinical and nursing education in Tanzania.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Promoting family planning (FP) is a key strategy for health, economic and population growth of Sub-Saharan Africa. One strategy is to improve the quality of FP services, including enhancing pre-service FP teaching. **Aim:** The study sought to analyze gaps in pre-service FP teaching and identify opportunities for strengthening the training. **Methodology:** Data were collected from medical schools and pre-service nursing, Assistant Medical Officer (AMO), Clinical Officer (CO) and assistant CO schools in mainland Tanzania. A semi-structured questionnaire was used to interview teachers. Availability of teaching equipment and facilities for FP teaching were documented using a checklist. Curricula and syllabi were assessed for their suitability for competency-based FP teaching against predefined criteria established by the National Council for Technical Education (NACTE) and Tanzania Commission for Universities (TCU) guidelines. Quantitative data were analyzed using EPI Info 6 and qualitative data were manually analyzed using content analysis.**Results:** A total of 35 pre-service schools were evaluated including 30 non-degree schools and five degree offering schools. Of the 11 pre-service curricula used to guide teaching in these schools, only one met the criteria for suitability of FP teaching. FP teaching was typically theoretical with only 25.7% of all the schools having systems in place to produce graduates who could skilfully provide FP methods. Across schools, the target skills were to same level of competence and skewed towards short acting methods of contraception. Only 23% (n=7) of schools had skills laboratories,

73% (n=22) were either physically connected or linked to FP clinics. None of the degree providing schools practised FP at their own teaching hospital. **Conclusions:** Pre-service FP teaching in Tanzania is theoretical, poorly guided, and skewed toward short acting methods; a majority of the schools are unable to produce competent FP service providers.

362. **Muganyizi P, Kidanto H. Sickle Cell Disease in Pregnancy: An Emerging Challenge in Obstetric Practice in Tanzania. *3rd MUHAS Scientific Conference, 2015*.**

Background: SCD in pregnancy is associated with increased adverse fetal and maternal outcomes. In Tanzania where the frequency of sickle cell trait is 13% there has been scanty data on SCD in pregnancy. **Aim**: To compare Fetal and maternal outcomes of SCD deliveries with non-SCD deleveries. **Methodology**: Fetal and maternal outcomes of SCD deliveries at Muhimbili National Hospital (MNH) from 1999 to 2011were compared with non-SCD. Data were analyzed using IBM SPSS statistics version 19. Chi square and Fisher Exact tests were used to compare proportions and the independent t-test for continuous data. To predict risks of adverse effects, odds ratios were determined using multivariate logistic regression. A p-value <0.05 was considered significant. **Results:** A total, 157,473 deliveries occurred at MNH during the study period, of which 149 were SCD (incidence of 95 SCD per 100,000 deliveries). The incidence of SCD increased from 76 per 100,000 deliveries in the 1999 -2002 period to over 100 per 100, 000 deliveries in recent years. The mean maternal age at delivery was lower in SCD (24.0 ±5.5 years) than in non-SCD deliveries (26.2±6.0 years), p<0.001. Compared with non-SCD (2.9±0.7Kg), SCD deliveries had less mean birth-weight (2.6±0.6 Kg), p<0.001. SCD were more likely than non-SCD to deliver low APGAR score at 5 minutes (34.5% *Vs* 15.0%, OR= 3.0, 95%CI: 2.1-4.2), stillbirths (25.7% *Vs* 7.5%, OR= 4.0, 95%CI: 2.8-5.8). There was excessive risk of maternal deaths in SCD compared to non-SCD (11.4% *Vs* 0.4%, OR=29, 95%CI: 17.3-48.1). The leading cause of deaths in SCD was infections in wholly 82% in contrast to only 32% in non-SCD. **Conclusion:** SCD in pregnancy is an emerging problem at MNH with increased adverse fetal outcomes and excessive maternal mortality mainly due to infections.

363. **Mugassa MA. Factors influencing uptake of cervical cancer screening services among women in Kinondoni District, Dar Es Salaam, Tanzania. Degree of Master of Arts (Health Policy and Management)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Introduction: The current status of cervical cancer screening in Tanzania is characterized as one of the areas suffering from lack of priority. The number of women up taking cervical cancer screening is still low and receives a low priority among the community and public sector. Competing priorities such as education and health (especially curative) contribute to low prioritization of early cervical cancer screening in the communities and the government at the local, district, regional and national levels. By employing the principles of population based programmes it is presumed that there will be an improvement in the implementation of cervical cancer prevention strategies. This requires the identification of factors that could be contributing to low up-take of early cervical cancer screening. **Purpose of the study:** The study intended to add to knowledge and literature that will help National and District health system authorities to understand barriers to the implementation of cervical cancer prevention through up taking screening services and possible solutions to overcome them. **Methodology:** The study was conducted in Kinondoni District, Dar es Salaam in Tanzania. A qualitative research method was used whereby interview guides for In-depth interviews and Focus Group Discussion (FGD) are used to obtain information from key Informants and community member (target group). The sample size was; 6 key informants and 30 outpatient service recipients at the Ocean Road Cancer Institute, the sample size was determined at the saturation point. The qualitative data analysis employed content analysis. This involved reading through the transcribed texts of each interview and identifying responses relevant to the main questions raised by the study. **Results:** The analysis of the collected data generated a number of themes that illustrated the influence in the uptake of cervical cancer screening services in the Kinondoni district. These themes are categorized in four different levels: at the national level the main emerged themes are prioritization of curative services in planning and allocation of resources than in preventive services; inadequate capacity building; and poor flow of information due to inadequate time management. At the district health systems level, the emerged themes included: lack of

provision of cervical cancer screening services; lack of adequate resources including funding and poor collaboration with the private sector. At the health facility level there are inadequate availability of tools and instruments; insufficient allocation of funds for preventive services; and shortage of skilled and competent health workers. At the service recipients' level, the main themes are negative perceptions on the quality of cervical cancer screening services, poor male involvement in supporting cervical cancer screening, lack of financial support and health financing services and lack of education and awareness on the benefits of cervical cancer screening services. **Conclusion:** The study shows that Tanzania has a national strategy for cervical cancer screening services. However, there is a need for reform because there are health system factors from national to facility level as well as community level factors that have affected the implementation and utilization of cervical cancer screening services; thus hindering the early uptake of cervical cancer screening services. The health system factors that influence the government, district and health facility authorities are faced with the challenges that are caused by not involving all stakeholders in planning and creation of circumstances for motivation, information and interaction to allow successful implementation of the actors. Also community factors influence the health authorities, primary health workers and community leaders, they have not made sure that the community is mobilized so that when services are provided the community utilizes them and influence the uptake of cervical cancer screening services.

364. Mugonzibwa EA, Rugarababu PGM. Eruption pattern of permanent teeth in Tanzania children and adolescents in Dar es Salaam. *Tanzania Dental Journal*. 2015; *6*(1): 39-46.

The aim of the study was to estimate the mean ages of pennanent teeth eruption in 3-18 years old children and adolescents in Ilala districts, Dar es Salaam. The study included 858 subjects of whom 419 were boys and 439 girls. The tooth was considered erupted when any part of the tooth crown was visible in the oral vacity. Generally permanent teeth erupted earlier in girls than in boys. The differences were 0.1 - 0.2 years for incisors and first molars, 0.2 - 0.4 years for canines and premolars and 0.3 - 0.5 years for second molars. Except for the second premolars, mandibular teeth erupted earlier than the maxillary in both girls and boys. The difference was about O. 1 - 0.4 years. The order

of eruption of the teeth was MI. 11. 12, Pm1, c, Pm2, M2 and M3 in the maxillar; and MI, II, 12, c, Pml, Pm2, M2.and M3 in the mandible. The children entered the first and second phases of the mixed dentition at. the ages of 4 and 8 years, respectively. Except for the third molars, all teeth were erupted at the age of 15 years in girls and boys. The results indicate that teeth eruptarlier in girls than boys, and the mandibular erupt earlier than the corresponding macillary teeth. The mean ages of eruption of permanent teeth in children and adolescents in present study were bigger compared to those in previous African studies. However, due to wide variation, of teeth eruption patterns which exist in different tooth pairs, individuals and population groups as reported elsewhere more studies on the subject especially the longitudinal types are justified.

365. **Mugoyela G, Sempombe J , Kilulya K, Chambuso M, Mugoyela V, Kaale E. Quantitave near Infrared Spectroscopy Model for Assessment of Efavirenz in Tablets.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Near-infrared-spectroscopy (NIRS) combined with multivariate data analysis (MVDA) represents the most recent and efficient technology in analytical Chemistry. The method has been proven to be simple, fast and suitable for quantitative assessment of efavirenz in efavirenz uncoated tablets. **Objective:** The main objective of the study was to utilize near infrared spectroscopy as an adapted technology for quantitative assessment of efavirenz. The study specifically developed and validated a quantitative model for estimating amount of efavirenz in efavirenz uncoated tablets.**Methods:** The active principle (efavirenz) was quantified with partial least-square algorithm and constructed by cross-validation. Ultra-Violet (UV) spectrophotometric procedure was used as a reference method. Different pre-processing methods were used for development of calibration models.**Results:** The best calibration model was found when partial least square (PLS) was used as regression algorithm in association with Multiplicative Scattering Correction as pre-processing spectrum method. The model estimators were as follows; coefficient of determination (R^2) was 0.9815, standard error of cross validation (SECV) was 2.0346 and a factor of 5. The chosen model correlated well with the prediction results in accordance with the Mahalabinos distance (M-dist.) limits.**Conclusion:** The developed NIR method allows the estimation of amount of

efavirenz in tablet form without sample preparation. Hence, NIR coupled with chemometric methods can be used for *on line, in line or at line monitoring* of the manufacturing process and are helpful in achieving the goals of the Process Analytical Technology (PAT).

366. **Muhoka PL. Profile And Treatment Outcome of Laryngeal Cancer Patients Attended at Orci from 2008 to 2011 Masters of Medicine (Clinical Oncology)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Introduction: Laryngeal cancer is the cancer of the cells found in the larynx. The new cases diagnosed annually have significant geographical variation. Laryngeal cancer is more common to male compared female and more in low social economic class. It is more prevalent in elderly people and the glottis area is the most common site. The high risk factors associated with laryngeal cancer include smoking cigarette, excessive alcohol consumption especially spirits, squamous cell carcinoma is by far the commonest histological type and the symptoms include hoarseness of voices, sore throat, painful swallowing and change in voice quality or enlarged neck nodes. In early stages, laryngeal cancer can be treated by surgery or radiotherapy and combination of radiotherapy and chemotherapy in late stages of the disease. **Objective of the study:** The aimed to describe the disease profile of the patient with laryngeal cancer attended at ocean road cancer institute, Tanzania from 2008to 2011. **Methodology:** The study was hospital based cross-sectional study and it was conducted at ocean road cancer institute targeting included all patients with laryngeal cancer from 2008 to 2011, whose baseline characteristics were determined before beginning of treatment and at least one follow up visit and excluded all subjects whose records were not available. Sociodermographic characteristics, disease and treatment profiles were clearly documented. **Results:** 72 patients were included in a study, 86.1% were males and 13.9% were females. The youngest patient was 35 years and the oldest patient had 84 years with mean age 58.1 years, where by 59.7% of the patients included in the study had primary education and below. 64.4% had history of both alcohol consumption and cigarette smoking prior to disease development and the glottis area was common disease site by 66.7% with squamous cell carcinoma the most histological type by 98.6%. Majority had advanced disease stage III and IV with 73.6% of all patients included in the study where by the

combination chemo radiation was common treatment modality. **Conclusion and recommendation:** Most of the laryngeal cancer patients attended at ORCI was mid age males with low level of education, presented with late stage disease and they were treated by combination chemo radiation which offered symptomatic relief. The proportion of patients attaining complete remission following treatment was low and this is probably due to late disease presentation. Health education, change of behavior campaigns towards cigarette smoking and alcohol consumption and improvement of health infrastructures are needed to reduce the disease development and improve its diagnosis and treatment.

367. **Mujuni EF. Prevalence And Co-Varieties Of Left Ventricular Dysfunction Among Patients With Chronic Kidney Disease Attending Muhimbili National Hospital Master of Medicine (Internal Medicine)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Chronic kidney disease (CKD) is at least 3–4 times more frequent in sub Saharan Africa than in developed countries, affecting mainly young adults in their productive years. The disease is a significant cause of mortality in the region, which may be a result of death from kidney failure or from congestive heart failure - a frequent complication of CKD. There is however scarcity of documented literature on the magnitude of LV dysfunction among CKD patients in Tanzania. **Objective:** To determine the prevalence and covariates of LV dysfunction in patients with CKD attending Muhimbili National Hospital. **Methodology:** A descriptive cross-sectional study was conducted between March and October 2014 at the Nephrology Unit, Muhimbili National Hospital. Patients with CKD were consecutively enrolled into the study, if they fulfilled the inclusion criteria and had consented to take part in the study. A structured questionnaire was used to gather information on patient's clinical characteristics as well as cardiovascular risk profile. Laboratory tests included a blood sample for serum creatinine, urea, and cholesterol levels. A urine dipstick was tested for proteinuria. Echocardiograms were performed to assess the LV systolic and diastolic functions. LV systolic dysfunction was defined as ejection fraction <55% and LV diastolic dysfunction as mild (impaired relaxation), moderate (pseudo normal pattern) and severe (restrictive pattern), based on transmitral pulsed-wave Doppler inflow recordings and tissue Doppler imaging of the medial mitral annulus. Data management

and analysis was performed using SPSS software, version 18. A p-value of <0.05 was considered to indicate a significant statistical difference. **Results:** In total 197 CKD patients were enrolled but only 191 (96.9%) had complete data and were analyzed. The mean±SD age was 48±13 years, and 45.5% were females. The mean blood pressure was 154±24/92±14mmHg and 98.4% were hypertensive, with a mean duration of hypertension of 4.7years. Diabetes was present in 22.8%, smoking in 10.7% and 3.7% were obese. The mean serum creatinine levels were very high (1173±688 µmol/l) and 97.9% had end stage renal disease. The prevalence of LV systolic and diastolic dysfunction was 16.2% and 68.6% respectively in the total population. A clinical finding of heart failure was the only independent predictor of an echocardiographic finding of LV systolic dysfunction (OR = 2.9, p = 0.012), while independent predictors of LV diastolic dysfunction were anemia (OR = 4.9, p = 0.01) and severe hypertension (OR = 9.2, p = 0.001). Males were 70% less likely to have LV diastolic dysfunction when compared to females, p = 0.002. **Conclusion and Recommendation:** Left ventricular dysfunction is prevalent among patients with CKD attending Muhimbili National Hospital and is associated with modifiable and non-modifiable factors. Echocardiography should be performed in patients with CKD in order to detect overt or sub-clinical LV dysfunction.

368. **Mukyanuzi FK. Accessibility and acceptability of hiv/aids care and treatment services among youths in public health facilities in Dar Es Salaam, Tanzania. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences*.**

Background: Sub-Saharan Africa is still burdened with many infectious diseases including HIV. Youths aged 15-24 years are the most afflicted group with HIV. One of the efforts to halt the impact of the epidemic has been putting in place HIV Care and Treatment Clinics (CTCs). However, Management and Development for Health (MDH) supported facilities patient data indicates the consistent challenge of high rates of missing appointment (12%) and lost follow up (23%) for youths. **Objective of the study:** To determine the factors that affect the accessibility and acceptability of HIV/AIDS care and treatment services among this age group in Dar es Salaam, Tanzania. Materials and methods: A cross sectional descriptive study was conducted in Dar es Salam, Tanzania. Twelve sites were purposefully sampled and a total of 411 youths were conveniently

picked and interviewed using a questionnaire with structured questions. Univariate and Multivariate analysis were done using SPSS. **Findings:** Accessibility of CTCs was low (52.3%) while the overall acceptability of the services was high (83.2%). Age, marital status and sex were found not to be statistically significantly associated with accessibility to CTCs among youths. Cost to access the service especially the transport cost, education level, district of residence and having a clinic nearby to where youths live affected youths' accessibility to these services. Long waiting time, unfriendly health care providers, lack of privacy and confidentiality, being mixed with adults when receiving the services at CTCs, and lack of integrated services (like STI screening and STI treatment), were some of the challenges which had significant association with youths' accessibility to and acceptability of CTC services**. Conclusion and recommendations:** The findings imply that the context, in which the CTCs operate, does not focus and consider youths' special needs to attract them to access and utilize the services. Further studies on how quality of services is associated with accessibility to CTCs among youths should be carried out to inform policy change in order to increase youths' accessibility to hence utilization of HIV/AIDS care and treatment services in Dar es Salaam, Tanzania.

369. **Mukyanuzi KF. Accessibility and Acceptability of HIV/AIDs Care and Treativient Services among Youths in Public Health Facilities in Dar Es Salaam, Tanzania. Master of Public Health,** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Sub-Saharan Africa is still burdened with many infectious diseases including HIV. Youths aged I5-24 years are the most afflicted group with HIV. One of the efforts to halt the impact of the epidemic has been putting in place HIV Care and Treatment Clinics (CI` Cs). However, Management and Development for Health (MDH) supported facilities patient data indicates the consistent challenge of high rates of missing appointment (12%) and lost follow up (23%) for youths. **Objective of the study:** To determine the factor that affects the accessibility and acceptability of HIV/AIDS care and treatment services among this age group in Dar es Salaam, Tanzania. **Materials and methods**: A cross sectional descriptive study was conducted in Dar· es Salam, Tanzania. Twelve sites were purposively sampled and a total of 411 youths were conveniently picked and interviewed using a questionnaire with structured questions. Univariate and

Multivariate analysis were done using SPSS. Findings: Accessibility of CTCs was low (52.3%) while the overall acceptability of the services was high (83.2%). Age, marital status and sex were found not to be statistically significantly associated with accessibility to CTCs among youths. Cost to access the service especially the transport cost, education level, district of residence and having a clinic nearby to where youths live affected youths' accessibility to these services. Long waiting time, unfriendly health care providers, lack of privacy and confidentiality, being mixed with adults when receiving the services at CTCs, and lack of integrated services (like STI screening and STI treatment), were some of the challenges which had significant association with youths' accessibility to and acceptability of CTC services. **Conclusion and recommendations:** The findings imply that the context, in which the CTCs operate, does not focus and consider youths' special needs to attract them to access and utilize the services. Further studies on how quality of services is associated with accessibility to CT Cs among youths should be carried out to inform policy change in order to increase youths 'accessibility to hence utilization of HIV/AIDS care and treatment services in Dar es Salaam, Tanzania.

370. Munseri P, Bakari M, Pallangyo K, Ngatoluwa M, Chum S, Abdullah A, Massawa T, Niima D, Swaleh A, Kiwelu G, Mtomoni T, Salala E, Mhalu F, Sandstrom E, Lyamuya E. "Snow-ball" was the best method for recruiting volunteers to a third HIV phase 2 vaccine trial in Dar es Salaam, Tanzania. *3rd MUHAS Scientific Conference,* 2015.

Background: In previous HIVIS-03 trial intradermal priming with DNA and boosting with MVA resulted in strong and broad immune responses. However, recruitment was a challenge, resulting into a protracted recruitment period. In TaMoVac-II trial we are exploring if electroporation further enhances the immune responses following priming with 600mg of DNA. We describe recruitment experiences in this phase II trial at the Dar es Salaam site.**Methods:** This double blind multi-site, trial recruited 82 of the intended 198 among a total of 198 HIV-uninfected volunteers aged 18-40 years from Dar es Salaam. The rest were recruited at Mbeya and Maputo sites. Volunteers in Dar es Salaam were from the Police and Prison forces, youths' clinic and the general population. Recruitment was initially through pre-screening workshops, as was done in previous trials, followed by "snowballing" whereby volunteers from previous and current trials

brought in other volunteers. Descriptive analysis on recruitment was performed.**Results:** We screened 199 volunteers; 20, 13, 28 and 138 from the Police, Prisons, youth and the general population respectively. Enrollees were 82, being 5, 4, 14, and 59 from the Police, Prisons and general population respectively. Their median (range) age was 22.5 (18-30) years. Thirty-nine (47%) of the enrolled were females. Of the 266 individuals who attended pre-screening workshops 244 agreed to be screened and 42 were eventually screened. Only 10/42 was recruited. The "snowball" method recruited 71 (87%) of the 82 participants, whereas only 9 were recruited from the Police and Prison forces. Recruitment was complete in 6 months, compared to 1.25 years in HIVIS-03.**Conclusion:** In TaMoVac-II trial the most effective recruitment method was "snow-balling" with participants from the general population and youths. Conduct of pre-screening workshops among Police and Prison force officers was not as efficient as it was in the previous trials.

371. **Munseri PJ, Kroidl A, Nilsson C, Geldmacher C, Mann P, Moshiro C, Aboud S, Lyamuya E, Maboko L, Missanga M, Kaluwa B. Priming with a simplified intradermal HIV-1 DNA vaccine regimen followed by boosting with recombinant HIV-1 MVA vaccine is safe and immunogenic: A phase IIa randomized clinical trial. *PloS one*. 2015; 10(4):e0119629.**

Background: Intradermal priming with HIV-1 DNA plasmids followed by HIV-1MVA boosting induces strong and broad cellular and humoral immune responses. In our previous HIVIS-03 trial, we used 5 injections with 2 pools of HIV-DNA at separate sites for each priming immunization. The present study explores whether HIV-DNA priming can be simplified by reducing the number of DNA injections and administration of combined versus separated plasmid pools. **Methods:** In this phase IIa, randomized trial, priming was performed using 5 injections of HIV-DNA, 1000 μg total dose, (3 Env and 2 Gag encoding plasmids) compared to two "simplified" regimens of 2 injections of HIV-DNA, 600 μg total dose, of Env- and Gag-encoding plasmid pools with each pool either administered separately or combined. HIV-DNA immunizations were given intradermally at weeks 0, 4, and 12. Boosting was performed intramuscularly with 10^8 pfu HIV-MVA at weeks 30 and 46. **Results:** 129 healthy Tanzanian participants were enrolled. There were no differences in adverse events between the groups. The proportion

of IFN-γ ELISpot responders to Gag and/or Env peptides after the second HIV-MVA boost did not differ significantly between the groups primed with 2 injections of combined HIV-DNA pools, 2 injections with separated pools, and 5 injections with separated pools (90%, 97% and 97%). There were no significant differences in the magnitude of Gag and/or Env IFN-γ ELISpot responses, in CD4+ and CD8+ T cell responses measured as IFN-γ/IL-2 production by intracellular cytokine staining (ICS) or in response rates and median titers for binding antibodies to Env gp160 between study groups. **Conclusions:** A simplified intradermal vaccination regimen with 2 injections of a total of 600 μg with combined HIV-DNA plasmids primed cellular responses as efficiently as the standard regimen of 5 injections of a total of 1000 μg with separated plasmid pools after boosting twice with HIV-MVA

372. **Muro L, Kaale E, Mugoyela V, Sempombe J. Development and Validation of an HPTLC Analytical Method for Bisphenol Release from Infant Feeding Bottles. *3rd MUHAS Scientific Conference,* 2015.**

Background: Bisphenol A (BPA) or 2, 2-(4, 4-dihydroxydiphenyl) propane is a plastic monomer and a plasticizer, used in the production of polycarbonate and epoxy resins. This is added to plastic to make it more pliable for different consumer products such as toys, infant-baby bottles, returnable bottles for soft drinks, beverage containers, dental sealants and other consumer products.However, BPA has been found to be a synthetic estrogen that mimics estrogen and causes damage to the reproductive, neurological and immune systems during critical stages of development, such as infancy and in the womb. **Objectives:** To develop and validate an HPTLC analytical method for Bisphenol A release from infant feeding bottles. **Methodology:** The analytical method was developed by optimizing the compositions and ratios of mobile phase. The BPA will be extracted from the infant's feeding bottles using simulants, water and ethanol (10%). **Results:** The best composition of mobile phase was found to be Toluene 20: Methanol 5: Ethyl Acetate 5. The BPA peak was observed at 230 nm with an Rf value of 0.52.The developed method was expected to be specific and selective to detect unwanted amounts of BPA leaking from infant feeding bottles. **Conclusion:** HPTLC can be useful in resource limited countries, for analysis of the carcinogenic substance, BPA.

373. **Murray CJ, Barber RM, Foreman KJ, Ozgoren AA, Abd-Allah F, Abera SF, Aboyans V, Abraham JP, Abubakar I, Abu-Raddad LJ, Abu-Rmeileh NM. Global, regional, and national disability-adjusted life years (DALYs) for 306 diseases and injuries and healthy life expectancy (HALE) for 188 countries, 1990–2013: quantifying the epidemiological transition.** ***The Lancet.*** **2015; 386(10009):2145-91.**

Background: The Global Burden of Disease Study 2013 (GBD 2013) aims to bring together all available epidemiological data using a coherent measurement framework, standardized estimation methods, and transparent data sources to enable comparisons of health loss over time and across causes, age–sex groups, and countries. The GBD can be used to generate summary measures such as disability-adjusted life-years (DALYs) and healthy life expectancy (HALE) that make possible comparative assessments of broad epidemiological patterns across countries and time. These summary measures can also be used to quantify the component of variation in epidemiology that is related to social demographic development. **Methods:** We used the published GBD 2013 data for age-specific mortality, years of life lost due to premature mortality (YLLs), and years lived with disability (YLDs) to calculate DALYs and HALE for 1990, 1995, 2000, 2005, 2010, and 2013 for 188 countries. We calculated HALE using the Sullivan method; 95% uncertainty intervals (UIs) represent uncertainty in age-specific death rates and YLDs per person for each country, age, sex, and year. We estimated DALYs for 306 causes for each country as the sum of YLLs and YLDs; 95% UIs represent uncertainty in YLL and YLD rates. We quantified patterns of the epidemiological transition with a composite indicator of sociodemographic status, which we constructed from income per person, average years of schooling after age 15 years, and the total fertility rate and mean age of the population. We applied hierarchical regression to DALY rates by cause across countries to decompose variance related to the sociodemographic status variable, country, and time. **Findings:** Worldwide, from 1990 to 2013, life expectancy at birth rose by 6·2 years (95% UI 5·6–6·6), from 65·3 years (65·0–65·6) in 1990 to 71·5 years (71·0–71·9) in 2013, HALE at birth rose by 5·4 years (4·9–5·8), from 56·9 years (54·5–59·1) to 62·3 years (59·7–64·8), total DALYs fell by 3·6% (0·3–7·4), and age-standardized DALY rates per 100 000 people fell by 26·7% (24·6–29·1). For communicable, maternal, neonatal, and nutritional disorders, global DALY numbers, crude rates, and age-

standardized rates have all declined between 1990 and 2013, whereas for non–communicable diseases, global DALYs have been increasing, DALY rates have remained nearly constant, and age-standardized DALY rates declined during the same period. From 2005 to 2013, the number of DALYs increased for most specific non-communicable diseases, including cardiovascular diseases and neoplasm, in addition to dengue, food-borne treaties, and leishmaniasis; DALYs decreased for nearly all other causes. By 2013, the five leading causes of DALYs were ischemic heart disease, lower respiratory infections, cerebrovascular disease, low back and neck pain, and road injuries. Sociodemographic status explained more than 50% of the variance between countries and over time for diarrhea, lower respiratory infections, and other common infectious diseases; maternal disorders; neonatal disorders; nutritional deficiencies; other communicable, maternal, neonatal, and nutritional diseases; musculoskeletal disorders; and other non-communicable diseases. However, sociodemographic status explained less than 10% of the variance in DALY rates for cardiovascular diseases; chronic respiratory diseases; cirrhosis; diabetes, urogenital, blood, and endocrine diseases; unintentional injuries; and self-harm and interpersonal violence. Predictably, increased sociodemographic status was associated with a shift in burden from YLLs to YLDs, driven by declines in YLLs and increases in YLDs from musculoskeletal disorders, neurological disorders, and mental and substance use disorders. In most country-specific estimates, the increase in life expectancy was greater than that in HALE. Leading causes of DALYs are highly variable across countries. **Interpretation:** Global health is improving. Population growth and ageing have driven up numbers of DALYs, but crude rates have remained relatively constant, showing that progress in health does not mean fewer demands on health systems. The notion of an epidemiological transition—in which increasing sociodemographic status brings structured change in disease burden—is useful, but there is tremendous variation in burden of disease that is not associated with sociodemographic status. This further underscores the need for country-specific assessments of DALYs and HALE to appropriately inform health policy decisions and attendant actions.

374. **Mushi E, Charles K. Knowledge, Attitude and Use of Modern Family Planning Methods Among HIV Infected Women In Songea Municipality. *3rd MUHAS Scientific Conference,* 2015.**

Background: There are several published studies addressing knowledge, attitude and use of Family Planning (FP) in Tanzania. However, studies addressing the use, attitude and knowledge of modern FP methods among Women Living with HIV/AIDS (WLWHA) are uncommon. **Aim:** To assess knowledge attitude and use of modern FP methods among women (15-49 years) attending CTC in Songea Municipality.**Methodology:** WLWHA attending CTC in Songea Regional Hospital who consented for the study were interviewed. A semi-structured questionnaire was used to obtain socio-demographic data and knowledge, attitude and use of modern FP. Data was analyzed using SPSS. **Results:** Four hundred and eighteen women were interviewed. The mean age of respondents was 36.08 ± 8.099(SD), and only 9.8% had no formal education. Seventy-seven percent had regular sexual partners; however disclosure to the partner was only 80.3%. Awareness and knowledge on FP methods was 99.3% and 72.5% respectively. Most known methods were male condom (99.3), pills (98.3) and injectables (97.8%). Respondents with positive attitude towards modern FP were 52%, whereas only 60% were current users. Male condom was used by 84.7%, but dual method by only 27.3%. Lack of a regular partner (36.7%), partner disapproval (28.4%) and perceived side effects (28.4) were barriers to utilization. Of the 112 respondents who became pregnant after knowing their HIV status, 54 (48.2%) had unintended pregnancies.**Conclusion:** Awareness and knowledge on FP methods and condom use was high but not dual methods. Unmet need for effective FP methods was observed. To reduce the burden of HIV/AIDS and unintended pregnancies, effective methods should be provided to WLWHA.

375. **Mushi L. Assessment of provider initiated and HIV testing and counselling (PITC) programme in Ilala, Dar es Salaam in Tanzania. *3rd MUHAS Scientific Conference, 2015*.**

Background: Provider-initiated HIV testing and counseling (PITC) is widely recommended to ensure timely diagnosis and management of HIV infection. The Tanzanian Ministry of Health and Social Welfare introduced PITC in 2007. However,

there is little evidence of provider perceptions and institutional capacity to implement PITC in Tanzania. **Objectives**: This cross-sectional study aimed to evaluate client and health care worker (HCW) perceptions and institutional capacity to implement PITC. **Methodology**: This study was conducted at the Muhimbili National Hospital (MNH). Assessment of institutional capacity was done using a capacity assessment checklist, in-depth interviews with clients and focus group discussions with healthcare workers. The interviews and FGDS were thematically analyzed. **Results:** Findings reveal a gradual increase in proportion of clients who got PITC services at the In-patient Department with time from 64% in 2007 to 96% in 2012. In contrast, the proportion TB clients who got the PITC services decreased with time, 99.53% in 2007 to 84.79% in 2012. Shortage of trained staff and appropriate counselling space were the setbacks discussed as hindering the progress and coverage of PITC services. The interviewed clients valued greatly the PITC services provided by the HCWs. Despite the fact that the PITC services drastically increased the health workers work load, the program was generally considered a valuable lifesaving intervention. **Conclusion**: There is a need to improve PITC services by addressing structural and institutional barriers in order to achieve national HIV testing targets.

376. **Mushi M, Mshana SE. Detection of carbapenems resistance using disc diffusion, E-test and PCR: Sensitivity and specificity of disc diffusion method. *3rd MUHAS Scientific Conference, 2015.***

Background: Carbapenems are β-lactam antibiotics recommended as last resort options for treatment of systemic infections caused by multidrug resistant gram negative bacteria. The resistance of these antibiotics has been reported worldwide, particularly in the isolates involved in hospital-acquired infections. The readily available disc diffusion testing method for detection of imipenem or meropenem resistance has been reported to under estimate this problem. Therefore this study was done to evaluate the effectiveness of ertapenem (10µg) disc diffusion test using E-test and PCR as gold standard in detecting carbapenems resistance. **Methods:** A total of 44 multi-drug resistant gram negative bacteria from clinical specimens were used in this study. All isolates were sub-cultured on nutrient agar and subjected to disc diffusion test, meropenem E-Test and PCR assays. For PCR assay DNA was extracted using the boiling method and for each isolate,

five different PCR assays for detection of the carbapenem resistance-determining genes (VIM, IMP, KPC, OXA_48 and NDM) were performed. **Results:** Using Clinical Laboratory Standard Institute criteria, 37 (84.1%) of isolates had reduced susceptibility to ertapenem (10µg) while 8 (18.2%) had minimum inhibition concentration (MIC) of ≥2µg/ml on meropenem E-test. Out of 44 isolates, 31 (70.5%) were found to harbor carbapenems resistance genes. Using E-test as gold standard sensitivity and specificity of ertapenem (DST) were 87.5% and 16.7% respectively while when PCR was used as gold standard the sensitivity and specificity were 80.6% and 7.7% respectively. **Conclusion:** Despite poor specificity, ertapenem (10µg) has high sensitivity in detecting carbapenems resistance and should be usedin routine screening of carbapenems resistance among the MDR-GNB.

377. **Mushi ME. The prevalence, indications and complications of tracheostomy at Muhimbili national hospital & Muhimbili orthopedic institute. Master of MMed (Otorhinolaryngology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Tracheostomy is a surgically creation of airway on the anterior aspect in the cervical trachea. It is a life saving procedure in upper airway obstruction and can be performed at all ages. Tracheostomy is the oldest described surgical procedure gaining its reputation in the treatment of diphtheria in 1833.Apart from upper airway obstruction other indications includes prolonged intubation and management of secretions, adjunct to head and neck surgeries. Others includes post-thyroidectomy, tracheomalacia, neurological bilateral vocal cord palsy and failed endotracheal intubation. Tracheostomy as any other surgical procedure is associated with complications which range from intra-operative hypoxia, bleeding, loss of airway ,bronchospasm to later complication like sepsis, obstruction, TEF, difficult decanulation and subglotttic stenosis. **Objective:** To determine the proportion of patients undergoing tracheostomy and establish the common indications and complications of tracheostomy at MNH &MOI. Study design The study is hospital based descriptive cross-sectional involving patients undergoing tracheostomy at MNH&MOI. Study Setting MNH&MOI **Methods**: All patients who underwent tracheostomy at MNH and MOI from May1st 2014 to January31st 2015 were enrolled in this study after consent was sought. Data was collected by extracting information from

the patients and filled in special preformed clinical form. A total of 111 patients were followed for a period of four weeks and any complication encountered was noted. Total hospital admissions were obtained from MNH & MOI statistics units. Data were entered in a computer cleaned, and analyzed using SPSS Soft ware version20. **Results**: A total of 111 patients, male 80(72.1%), female 31(27.9%) with ratio of 2.6:1 were involved in this study. The age at time of tracheostomy ranged from 3 to 80 years with mean age of 36.5 years ± 22.1 SD years. The highest frequent age at which tracheostomy was done was between 0-20 years (32%) , the age group 61-80 had fewer cases of tracheostomy20%.Upper airway obstruction secondary to neoplasms was the leading indication of tracheostomy with 46.8% ,followed by prolonged intubation and adjunct to major head and neck surgery with 18% and 17% respectively. One (0.9%) patient underwent tracheostomy due to failed endotracheal intubation. Complication were accounted in 35.1% of tracheostomies .Tube obstruction was the most encountered complication with 12.6%.No death was associated with tracheostomy related complications. **Conclusion:** This study has concluded that tracheostomy is among the common performed surgery. Upper airway obstruction secondary to neoplasm is the most common indication of tracheostomy in our centre. Mechanical ventilation is the main reason for prolonged intubation in patients admitted in ICU. Tracheostomy is still a life saving procedure in the surgical management of airway despite associated complications.

378. Mushi NF, Innocent E, Kidukuli AW. Cytotoxic and antimicrobial activities of substituted phenanthrenes from the roots of Combretum adenogonium Steud Ex A. Rich (Combretaceae). ***Journal of Intercultural Ethno pharmacology.*****2015: *4*(1), 52.**

Aim: The aim of this study was to isolate the bioactive compounds from the roots of *Combretum adenogonium* and assess for its antibacterial and cytotoxic properties. **Materials and Methods:** The extract was obtained using 20% aqueous ethanol and further subjected to fractionation with 1:1 n-butanol/water. Chromatographic analyses of the n-butanol fraction led to the isolation of compounds (1-3). The compounds (1-3) were assayed for antibacterial activities using two-fold microdilution methods and cytotoxicity using brine shrimps lethality assay. **Results:** Following spectroscopic analyses the compounds were established as 2, 3, 8-trihydroxy-4,6-dimethoxyphenanthrene (1a) and

2,3,8-trihydroxy-4,6-dimethoxy-9,10-dihydrophenanthrene (1β). Compound 2 was derived from 2,3,8-trihydroxy-4,6-dimethoxyphenanthrene condensation with methyl acetate while Compound 3 was derived from 2,3,8-trihydroxy-4,6-dimethoxy-9,10-dihydrophenanthrene condensation with methyl propionate. These compounds (1-3) were active against *Pseudomonas aeruginosa* with minimal inhibitory concentration-value of 0.16 mg/ml. The compounds (1-3) also exhibited significant toxicity with LC_{50} (95% confidence interval [CI]) of 12.11 (7.32-20.05) µg/ml compared to standard anticancer drug, cyclophosphamide which had LC_{50} (95% CI) value of 16.37 (12.01-22.31) µg/ml. **Conclusion:** These compounds add for a novel structure that can be synthesized, further screened for *in vitro* and *in vivo* models and clinical trials in order to evaluate its potential for further development as new anticancer agent.

379. **Mushtaq A, Shafiq M."An overview of empirical evidence of internet addiction disorder among adolescents."** ***Indian Journal of Health and Wellbeing,*** **2015: 6(4): 441.**

The Internet addiction or Internet addiction disorder (IAD) can have detrimental outcomes for young people that May require professional interventions. Nowadays researchers have identified a number of personality traits and Mushrooming disorders associated with Internet addiction. This article discusses the empirical support of various Authors that recognized the relevant external as well as internal factors considered to be the leading causes and Consequences of this fatal addiction. It discusses number of relevant studies that are consistent with the fact of Escalating neurotic/psychological problems associated with this disorder. The panoramic view of this pathological Gambling can offer a wider perspective towards this problem as well as help with the much-needed intervention.

380. **Mutabazi S, Moshi N, Obimbo F, Azaliwa R, Muhunzi S, Mapunda F, Nassari N, Hasegawa A, Tanaka A. Latent life related diseases in Dodoma Municipality, Dodoma.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Lifestyle related diseases (LRD) are emerging in Dodoma Municipality. Although LRD can be prevented, there is no necessary information to rely on in order to make strategies. **Aim:** To assess the existence of risk of LRD in the council. **Methods:**

We targeted men aged 20-60 years who had few access to health services except for sick treatments, conducted "Men's Health Day" at Makole Urban Health Centre on 16 November 2013, and offered health check-up including height, weight, body mass index (BMI), waist circumference (WC), and blood pressure (BP). We classified them as two groups; normal and above normal according to the WHO guideline, calculated the percentage per element. The relationships between BMI and BP, and between WC and BP, were assessed by chi-square test. The statistical analysis was performed using Microsoft Office Excel 2010.**Results:** The number of subjects was 213. Mean age 33.3 ± 10.9. The percentage of the above normal group of BMI (over 25), WC (over 94cm), systolic BP (higher than 130mmHg), and diastolic BP (higher than 85mmHg), were 24.9%, 14.6%, 39.4 %, and 20.7 % respectively. About a risk of hypertension there was a significant difference between groups under and over 25 of BMI ($p<0.01$), and between groups under and over 94cm of WC ($p<0.05$). **Conclusions:** The risk of LRD is present in Dodoma Municipality. As those whose BMI and WC are over the standard are more likely to suffer from hypertension, the weight control is considered significant. Strategies against LRD should be implemented as an imminent priority. After all we believe that the introduction of health promotion is highly needed for even countries where primary health care is still a priority. We also wish to have our own standards for Tanzanians so that we can make appropriate strategies to protect our people against LRD.

381. **Mutagaywa R, Lwakatare J. Outcomes of patients with and without pulmonary hypertension who underwent cardiac surgery at Muhimbili hospital 2008 – 2012. *3rd MUHAS Scientific Conference, 2015*.**

Background: Pulmonary hypertension (PHT) can complicate Rheumatic Heart Disease (RHD) and Congenital Heart Disease (CHD). Early intervention is the mainstay to avoid PHT and its complications. **Aim: To describe the outcomes of patients**with and without PHT admitted for cardiac surgery at Muhimbili National Hospital (MNH)**. Methods:** 453 patients were assessed retrospectively from patient's files, wards and theatre records. Data were recorded and filled in a structured questionnaire followed by analyses. **Results**: 330 patients underwent surgical operation in which 212 had RHD, 91 had CHD, 14 had both RHD and CHD, and 13 had other forms of cardiac diseases. Among the operated patients, data on PHT were available in 259 (78.5%), where 178

(68.7%) had PHT. In the RHD group, PHT was present in 150 (82.0%) of patients in which 31.7% were mild, 30.6% moderate, and 19.7% severe PHT. In the CHD group, PHT was present in 18 (32.1%) patients, 14.3% were mild, 16.1% moderate, and 1.8% severe PHT. At the end of patient's files review from the day of surgery to the day each patient last seen, 47 (18.1%) patients died, 80.9% of them had PHT. Patients who died from RHD, 26 (66.7%) died within 90 days (early mortality) and 88.5 % of these had PHT. All of deaths in CHD group were early mortality and all of them had PHT. Morever, patients with PHT stayed longer in ICU postoperatively versus patients' without.**Conclusion**: Prevalence of PHT in patients undergoing cardiac surgery at MNH is high especially in those with RHD. PHT was associated with early postoperative mortality. These findings call for intense care during the early postoperative period and further studies are required to look for other factors of mortality.

382. **Muzdalifat B, Muganyizi P, Mpembeni R, (et .al). "Evaluation of a training program for health care workers to improve the quality of care for rape survivors*: a quasi-experimental design study in Morogoro, Tanzania." PLoS ONE.* 2015.**

Background: Sexual violence against women and children in Tanzania and globally is a human rights violation and a developmental challenge. The aim of this study was to assess the impact of training health professionals on rape management. The specific objectives were to evaluate the changes of knowledge and attitudes towards sexual violence against women and children, among a selected population of health professionals at primary health care level. **Method:** A quasi-experimental design using cross-sectional surveys was conducted to evaluate health care workers' knowledge, attitude and clinical practice towards sexual violence before and after the training program. The study was conducted in the Morogoro region, involving the Kilombero (intervention) and Ulanga (comparison) districts. A total of 151 health professionals at baseline and 169 in the final assessment participated in the survey. Data were collected using the same structured questionnaire at baseline in 2012 and at final assessment in 2014. The Chi-square test was used for nominal and categorical data. The amount of change in key indicators from baseline to final assessment in the two areas was compared using the difference in difference method. **Results:** Overall, about half (48%) of survey respondents were nurses at baseline and at the final assessment (52.8%), with the rest

being clinicians. Overall, there was improved knowledge in the intervention district from 55% at baseline to 86%; and a decreased knowledge from 58.5% to 36.2% in the comparison area with the net effect of 53.7% and a *p*-value< 0.0001. The proportion of participants who exhibited accepting attitude towards violence declined from 15.3% to 11.2% in the intervention area but increased from13.2% to 20.0% in the comparison area. However, the observed overall changes in the intervention and comparison areas were not statistically significantly with the net effect of -10.9; *p*-value =0.1845. A significant improvement in the care of survivors was observed in most of the items used to measure practice in the intervention but not in the comparison area. **Conclusion:** The current intervention provides evidence that training on the management of sexual violence is effective in improving healthcare workers' knowledge and practice but not attitude. To ensure sustainability of such change, commitment is needed from those at strategic level within the health service to ensure that adequate resources are made available.

383. **Mvungi NT. HIV Infection and Carcinoma of the Conjunctiva at Ocean Road Cancer Institute. Masters of Medicine (Clinical Oncology)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Introduction: Incidence of conjunctiva carcinoma in developed countries has been increasing despite of the introduction of anti-retroviral therapy, Conjunctiva carcinoma as one of the AIDS defining disease is a significant contributor of top ten cancers at ORCI (ORCI cancer trend). Peak incidence occurs in the economically and most sexually active age group. Enucleating, radiotherapy and ARVs is the major treatment modality at ORCI. Studies on the association of between HIV infection and carcinoma of the conjunctiva are available in developed and developing countries but this information is scant in Tanzania. The association of HIV infection and conjunctiva carcinoma is high (significant) in our settings but has not been systematically documented. This study address these gaps **Objectives:** The study aimed at determining the association between HIV infection and carcinoma of the conjunctiva at Ocean Road Cancer Institute. **Methodology:** A hospital based cross sectional study was conducted at Ocean Road Cancer Institute. Participants were enrolled consecutively as they presented to the hospital for follow up. Demographic characteristics, Histology, HIV status, ARV status and treatment modalities that they received were clearly documented in a standardized structured questionnaire. **Results:** A

total of 80 patients (41 males, 39 female) conjunctiva carcinoma were enrolled into the study. Most of the patients,61.3%, were between 20 and 39yrs of age, Squamous cell carcinoma being the major histology seen by 68.8%,62.5% being seroconvert (i.e. HIV positive),50% were already on ARV,57.5% had CD4 <200 and 51.3% received Enucleating, radiotherapy and ARVs. **Conclusion and Recommendation:** Squamous cell carcinoma of the conjunctiva is strongly associated with the human immunodeficiency virus. It is recommended that all patients presenting with Squamous cell carcinoma of the conjunctiva should be tested for HIV seropositivity. Patients should be educated or encouraged to present early to the hospital to enable early and prompt treatment of the condition (tumour) and so improve prognosis.

384. Mwaikambo SA, Leyna GH, Killewo J, Simba A, Puoane T. Why are primary school children overweight and obese? A cross sectional study undertaken in Kinondoni district, Dar-es-salaam. *BMC public health*, 2015; 15(1): 1.

Background: The world is experiencing an alarming increase in prevalence of childhood obesity. Despite this trend little is known about determinants of childhood obesity in Tanzania. A cross sectional study determined the prevalence and factors associated with overweight and obesity in 1722 children aged 7–14 years (10.9 ± 1.74) attending primary schools in Dar es Salaam. **Methods:** Six public and four private schools were systemically selected from a total of 227 primary schools. Anthropometric measurements (weight and height) were collected using a standard protocol and Body Mass Index (BMI) was calculated. Interviews collected demographic characteristics and lifestyle factors. Multiple logistic regression test was used to assess the influence of independent variables on overweight and obesity while controlling for confounding factors. The level of significance was set at $\alpha = 5$ %. **Results:** Of 1, 722 children 10.2 % were overweight and 4.5 % were obese. Overweight and obesity was higher in boys (14.9 %) than girls (14.5 %), higher in children attending private schools (27.7 %) than public schools (5.9 %). Children who walked to and from school were less likely to be overweight or obese than those who used vehicles (AOR = 0.5; 95%CI: 0.3–0.6; $p < 0.001$). Those who used private cars or school buses were more likely to be overweight or obese than those who used public transport (AOR = 2.9; 95%CI: 0.2–0.7; $p < 0.05$). Computer/video game use were associated with increased risk of overweight and obesity (AOR = 1.6; 95%CI: 1.1–

2.3; p = 0.03). Lunch provided by schools was associated with increased risk of overweight or obese (AOR = 6.4, 95 % CI = 4.2–9.6, p < 0.001).**Conclusions:** The findings of this study identified a number of behavioural and dietary factors that are related to overweight and obesity. Parents and teachers should encourage children to be physically active by limiting screen time and promoting active transport to and from school to promote health and reduce obesity. Ministry of education needs to formulate/enforce policies that encourage physical activities for school children and regulate quality of foods provided to children at schools.

385. **Mwaiselo R, Mwaiswelo I, Ngasala B, Xu W, Bjorkman A, Premji Z, Martensson A. Parasite clearance and recurrence time following treatment with Artemether/Lumefantrine among children with uncomplicated malaria.** ***3rd MUHAS Scientific Conference, 2015***.

Background: Artemisinin resistance has been confirmed in South-East Asia, expressed phenotypicaly by a slow rate of parasite clearance. The phenomenon may spread to Africa. **Aim:** To assess parasite clearance time and time to recurrent infection following treatment with Artemether/Lumefantrine (AL) among children with uncomplicated *Plasmodiumfalciparum* malaria. **Methods:** An exploratory study was conducted between May and July 2012, at Fukayosi dispensary, in Bagamoyo district, Tanzania involving children aged 6-120 months with uncomplicated malaria. Children were screened, enrolled, hospitalized and received supervised AL treatment for 3 days. Blood samples were collected on blood slides and filter papers at -2 (screening time), 0 (medication time), 4, 8, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66 and 72 hours, and on days 7, 14, 21, 28, and 42. Parasitaemia was assessed by Microscopy and Polymerase chain reaction (PCR). Parasite clearance half-lives were estimated using parasite clearance estimator available online. Further genotyping was done for parasites' alleles in chromosomes (MAL) 10 and 13, and *P. falciparum* multidrug resistance (*Pf*mdr) 1 N86Y and chloroquine resistance transporter (*Pf*crt) K76T genes selection and assess its association with clearance and recurrence time. Primary end-point was median parasite clearance time. **Results:** Median parasite clearance time was 24 hours (Interquartile range [IQR], 18-28.50), and median clearance half-life was 1.54 hours (IQR, 1.12-2.03). PCR median clearance time was 168 hours (IQR, 72-336). There was no selection of MAL10 and MAL13. Parasites carrying

*Pf*mdr1 86N and *Pf*crt 76K alleles cleared slowly and recurred early on day 14. Median recurrence time was 28 days (IQR, 28-38.3). **Conclusion:** Microscopic clearance was rapid with no selection of MAL10 and MAL13, however, the observed prolonged PCR clearance of parasites carrying *Pf*mdr1 86N and *Pf*crt 76K probably indicates tolerance of these alleles against AL.

386. **Mwakimonga A. Diagnostic accuracy of fine needle aspiration cytology of thyroid gland lesions at Muhimbili National Hospital, Dar Es Salaam, Tanzania. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences.***

Background: Thyroid enlargement is one of the common problems in patients presenting with head and neck lesions particularly in females. At Muhimbili National Hospital (MNH) more than 50% of head and neck aspirations are from the thyroid gland. Fine Needle Aspiration Cytology is a diagnostic method based on the morphological findings of individual cells, group of cells, and micro-particles of tissue acquired using a needle, it is a simple, cheap and time saving procedure. Several studies have been done regarding accuracy of FNAC and have found FNAC to have high sensitivity, high specificity and as high as 100% diagnostic accuracy. Irrespective of the advantages of FNAC, disadvantages of open biopsy and the high frequency of thyroid gland lesions, no study so far has been conducted to ascertain the use of FNAC on the thyroid lesions in Tanzania. The aim of this study was to evaluate the diagnostic accuracy of fine needle aspiration cytology in the diagnosis of thyroid gland lesions at MNH. **Objectives:** To evaluate the diagnostic accuracy of FNAC in diagnosis of thyroid lesions by establishing the sensitivity and specificity of FNAC using histopathology as a gold standard. **Material and Methods:** The study was hospital based prospective and retrospective descriptive study at MNH. The duration for this study was 5 years and 10 months. The prospective part was conducted for a period 10 months and the retrospective part included cases diagnosed in a period of 5 years. All patients attending cytology clinic at MNH with thyroid nodules and were likely to undergo surgical intervention were included for the prospective arm of study while for the retrospective part; cases with both cytological slides and histological slides or blocks were included in this study. In the retrospective part, the cytological diagnosis was blinded. **Results:** A total of 160 patients were recruited for the study, 146(91.3%) females and 14(8.8%) males with female to male

ratio of 10.4:1. On cytology, 104 out of 160 cases were non-neoplastic lesions constituting 65% of all study cases. Nodular hyperplasias (colloid and multinodular goiters) constituted 87% of non neoplastic lesions and 56% of all thyroid lesions followed by cysts, and thyroiditis 9.6% (10) and 1.9%(2) respectively. Among neoplastic lesions follicular neoplasms constituted 25.6% (40) of all thyroid lesions and 78.8% of all neoplastic lesions. Concordance was observed in 87% (135) cases out of 156 cases and discordance in 13% (21). Non-neoplastic lesions showed a concordance rate of 91% (95) while for neoplastic cases 77% (40) were concordant. Cell blocks were made for 15 cases which turned out to be concordant on histology. Major discordants which were false negatives were 4.4% (7) cases and the non diagnostic cases were 4(2.5%). The specificity was found to be 89%, sensitivity 85% and the overall diagnostic accuracy was 88%. **Conclusion:** The results of this study demonstrate that FNA cytology is a sensitive, specific, and accurate diagnostic procedure. Irrespective of its limitations in the diagnosis of follicular carcinoma and Hurthle cell carcinoma, FNAC can be used as a screening tool for such cases as well as an initial diagnostic test for the preoperative evaluation of patients with other thyroid gland lesions.

387. **Mwakimonga A. Diagnostic Accuracy of Fine Needle Aspiration Cytology of Thyroid Gland Lesions at Muhumbili National Hospital, Dar Es Salaam, Tanzania. Master of Medicine (Anatomical Pathology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Thyroid enlargement is one of the common problems in patients presenting with head and neck lesions particularly in females. At Muhirnbili National _ Hospital (MNH) more than 50% of head and neck aspirations are hom the thyroid gland. Fine Needle Aspiration Cytology is a diagnostic method based on the morphological findings of individual cells, group of cells, and micro-particles of tissue acquired using a needle, it is a simple, cheap and time saving procedure. Several studies have been done regarding accuracy of FNAC and have found FNAC to have high sensitivity, high specificity and as high as 100% diagnostic accuracy. Irrespective of the advantages of FNAC, disadvantages of open biopsy and the high frequency of thyroid gland lesions, no study so far has been conducted to ascertain the use of FNAC on the thyroid lesions in Tanzania. The aim of this study was to evaluate the diagnostic accuracy of tine needle

aspiration cytology in the diagnosis of thyroid gland lesions at MNH. **Objectives:** To evaluate the diagnostic accuracy of FNAC in diagnosis of thyroid lesions by establishing the sensitivity and specificity of FNAC using histopathology as a gold standard. **Material and Methods:** The study was hospital based prospective and retrospective descriptive study at MNH. The duration for this study was 5 years and 10 months. The prospective part was conducted for a period 10 months and the retrospective part included cases diagnosed in a period of 5 years. All patients attending cytology clinic at MNH with thyroid nodules and were likely to undergo surgical intervention were included for the prospective arm of study while for the retrospective part; cases with both cytological slides and histological slides or blocks were included in this study. In 'the retrospective part, the cytological diagnosis was blinded. **Results:** A total of 160 patients were recruited for the study, 146(91.3%) females and 14(S.8%) males with female to male ratio of 10.4: 1. On cytology, 104 out of 160 cases were non-neoplastic lesions constituting 65% of all study cases. Nodular hyperplasia's _ (colloid and multinodular goiters) constituted 87% of non neoplastic lesions and 56% of all thyroid lesions followed by cysts, and thyroiditis 9.6% (10) and l.9%(2) respectively. Among neoplastic lesions follicular neoplasm's constituted 25.6% (40) of all thyroid lesions and 78.8% of all neoplastic lesions. Concordance was observed in 87% (135) cases out of 156 cases and discordance in 13% (21). Non-neoplastic lesions showed a concordance rate of 91% (95) while for neoplastic cases 77% (40) were concordant. Cell blocks were made for 15 cases which turned out to be concordant on histology. Major discord ants which were false negatives were 4.4% (7) cases and the non diagnostic cases were 4(2.5%). The specificity was found to be 89%, sensitivity 85% and the overall diagnostic accuracy was 88%. **Conclusion:** The results of this study demonstrate that FNA cytology is a sensitive, specific, and accurate diagnostic procedure. Irrespective of its limitations in the diagnosis of follicular carcinoma and Hurthle cell carcinoma, FNAC can be used as a screening tool for such eases as well as an initial diagnostic test for the preoperative evaluation of patients with other thyroid gland lesions.

388. **Mwakyandile MT. Assessment of ceftriaxone prescribing and resistance pattern of bacterial isolates to Ceftriaxone at Muhimbili National Hospital. Master of MSc**

(Clinical Pharmacology) ***Dissertation 2015. Muhimbili University of Health and Allied Science.***

Background: Antibiotics are agents produced by microorganisms that either kill or inhibit the growth of a micro-organism especially bacteria. Inappropriate use of antibiotics resulting from their inappropriate prescriptions may cause certain bacteria to become resistant to some of the most powerful antibiotics available today. Ceftriaxone is the most frequently prescribed and empirically used antibiotic making it prone to resistance. Resistance can be managed by improving antibiotic prescribing, dispensing and consuming patterns. Therefore the logical first step towards control is to evaluate the suitability of antibiotic usage. Ceftriaxone use evaluation studies reported high levels of its inappropriate prescription and use yet very little is known on how this drug is being prescribed and used in Tanzanian hospitals. Aim of the study: The study was conducted to assess ceftriaxone prescribing patternin the Medical wards and the resistance pattern of bacterial isolates to ceftriaxone at the MNH Dar es salaam, Tanzania. **Methodology:** This was a two armed study with clinical and laboratory parts. The study was a cross sectional prospective study. The clinical part was conducted using a structured questionnaire to collect data from medical files and treatment sheets of 360 patients admitted and prescribed with ceftriaxone in the Medical wards at MNH between February 2015 and May 2015. Ceftriaxone prescribing was evaluated as per checklist (prepared from the STGs of the United Republic of Tanzania and the Internal Medicine Treatment Guideline of MNH) based on four parameters (indication, dosage, frequency, duration).The laboratory part involved bacterial isolates cultured from clinical samples of patients from all departments of the MNH which were sent to the Bacteriology unit of the CPL for culture and sensitivity during the study period. The resistance patterns to ceftriaxone of all the bacterial isolates cultured from the clinical samples were determined. Data were analyzed using SPSS version 20 and summarized using appropriate standard statistics. **Results:** Most patients were doused with 1 gram once daily (77.5%). The duration of therapy was found high in the range of less than 7 days (77.5%). Ceftriaxone was prescribed mainly for Pneumonia (59.8%). Metronidazole was the most commonly co-prescribed drug (13.5%). The prescription of ceftriaxone for appropriate indication (indication for which ceftriaxone was recommended in the guidelines) was 45.6%. Most

incorrect prescriptions were seen in terms of frequency of administration. Compliance of prescribers to the treatment guidelines was 3.0%. Two hundred and twenty clinical samples yielded positive culture with significant growth of 220 bacteria isolates. Most of the clinical samples were from the Pediatrics and Child Health department (45.5%). Urine was the commonest sample (46.36%). Escherichia coli were the commonest bacteria isolate (38.64%). Resistance of bacteria isolates to ceftriaxone ranged from 16.7% to 79.5%. **Conclusion:** Ceftriaxone was prescribed inappropriately in terms of indications, dosage; frequency of administration and duration of therapy and the resistance of bacteria to it was high.

389. Mwakyoma HA, Ponsianus TT. "ALCIAN BLUE". 2015.

Background: Alcian blue (AB) is a cationic dye that stains mucins especially acidic mucins into varying shades of blue colour depending on the pH of the dye. GIT comprises of three main portions, fore-, mid- and hind-gut, which develops from different embryological areas. Their epithelial lining presents with varying degree of diversity including their secretions. Studies have shown that there is a tendency of cellular modification (physical and chemical) including secretions during tumors morphogenesis. With recent increase in GIT tumors especially epithelial tumors', Alcian Blue staining of mucins produced by these tumors' at different pH more than conventional pH might give valuable information on the property of these tumors'. **Setting:** The study was conducted in the Histopathology and Morbid Anatomy unit, department of Laboratory services, Muhimbili National Hospital, Tanzania. **Study design:** This was a hospital based retrospective study, in which archival data and blocks were retrieved. **Objective:** To determine the effect of pH and pattern of Alcian blue staining on primary GIT epithelial tumors'. **Materials and Methods:** Information on patients were obtained from cancer registry and patient files. Paraffin blocks were retrieved from archive, sections were cut using rotary microtome at 3µm (SAKURA). Haematoxylin and Eosin (H&E) and AB staining at pH 1, 1.5, 2 and 2.5 were done for each case and control. H&E slides were reviewed for confirmation of the diagnosis primary epithelial tumors' and AB stained slides were evaluated for staining reaction and graded. **Results:** Out of 87 GIT primary epithelial tumors which were evaluated, AB staining was positive in 21 (24.1%) cases, the majority of these (11 (52.4%)) were from hindgut. Positive AB staining of GIT

epithelial tumors' increased as the tumors became more differentiated irrespective of location. Majority of tumors with positive AB staining was observed at pH 2 in GIT epithelial tumors' as opposed to the conventional pH of 1 and 2.5 respectively. **Conclusions and recommendation:** The majority of primary GIT epithelial tambours stained positively at pH 2 irrespective of the location. However tumors differentiation influenced AB staining whereby well-differentiated tumors were mostly positively stained. It is recommended that AB at pH 2 should be applied when staining GIT epithelial tumors' rather than conventional pH of 1 and 2.5. However the degree of differentiation should be considered since poorly differentiated tumors' are likely to give negative results with AB staining.

390. **Mwalutambi. CA. Pattern of occurrence and clinicopathological presentation of odontogenic tumours among patients attended to at the oral and maxillofacial surgery department in Muhimbili National Hospital, Dar es Salaam – Tanzania. Master of Dentistry (Oral and Maxillofacial Surgery)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Odontogenic tumours constitute a group of heterogeneous diseases that range from benign to malignant tumours. These lesions are derived from the tooth-producing tissues or their remnants that remain entrapped either within the jawbones or into the adjacent soft tissues. Currently, little is known about the occurrence and clinicopathological presentation of odontogenic tumours in Tanzania. **Objective:** The main objective of this study was to determine the occurrence and clinicopathological presentation of odontogenic tumours among patients attended at the Muhimbili National Hospital, Dar es Salaam, Tanzania using 2005 WHO classification of odontogenic tumours. Study Design: This was a descriptive prospective hospital based study. Setting: This study was conducted at the Oral and Maxillofacial Surgery Department of the Muhimbili National Hospital, Dar es salaam, Tanzania. **Methods:** All patients who were histologically diagnosed having tumours of odontogenic origin using the 2005 WHO classification of odontogenic tumours and agreed to participate were recruited in this study. Patients' information e.g. age and gender (bio-data) were gathered by interviews using a structured questionnaire. Clinical, histological and radiological examinations were done and the findings were documented and recorded in a specially designed form.

Data were processed and analyzed using version 19 of Statistical Package for Social Science (SPSS). Frequency distribution to describe the sociodemographic, frequency of occurrence, clinicopathological as well as radiological characteristics of the study population was generated. Results: A total of 102 patients with histological diagnosis of odontogenic tumours comprising of 52 (51%) males and 50 (49%) females were included in this study. The mean age at diagnosis was 34.07 ± 14.8 SD years, and the most affected age group was 20-29- year-old. Ameloblastoma, 67 (65.7%) was the most common odontogenic tumour encountered followed by odontogenic myxoma/myxofibroma and keratocystic odontogenic tumour, having 6 (5.9%) patients each and malignant odontogenic tumours were 6.9%. Of the 67 patients encountered with ameloblastomas, 42 (62.7%) of them had solid/multicystic type and the most common histological pattern of this tumour was the follicular type 37 (55.2%). Of the intraosseous odontogenic tumours, 87 (90.6%) were located in the mandible and 9 (9.4%) were located in the maxilla, with a mandible to maxilla ratio of 9.67:1. Twenty six patients were managed surgically and the remaining patients were in the operation waiting list. **Conclusion:** Generally, there was an almost equal gender predilection in occurrence of OTs. A great majority of the OTs seen in this study were ameloblastoma. Most of the patients seen were in the 20-29-year age group and presented late with massive tumours. A great majority of patients described their conditions as painless swellings and most of the tumours were well dermacated. The frequency of occurrence of malignant odontogenic tumours (8.8%) was higher compared to the previous studies. In this study, KCOT, CCOT and desmoplastic ameloblastoma are OTs that are newly classified as tumours of odontogenic origin in the 2005 WHO classification of OTs and were not included in the previous studies which used the 1992 WHO classification of OTs. Clear cell odontogenic carcinoma has been reported as a malignant OT in this study different to previous classification in which it was reported as a benign OT. These findings will enable the clinicians to change the mode of management of tumours which were previously thought to be either odontogenic cysts or benign OTs.

391. Mwambete KD, Rugemalila D. "Antibiotic resistance profiles of bacteria isolated from surgical wounds in tertiary hospitals, Tanzania." ***Int. J. Curr. Microbiol. App. Sci.*** **2015; 4(1): 448-455.**

This study intends to isolate the most common bacteria-associated with surgical Site wound infections using imprint method owing to its large wound surface Coverage, embedment of surgical site fluid and being cost-effectiveness, and assess Their sensitivity patterns to commonly used antibiotics using the Kirby-Bauer disc Diffusion method. A total of 62 patients who underwent surgical procedures from Three tertiary hospitals were recruited, from whom a total of 158 bacteria were Isolated; that is multiple infections were common among the patients. *Staphylococcus aureus, Pseudomonas, aeruginosa, Proteus mirabilis* and *Enterobacteraerogenes*were the most frequently encountered bacteria. About 55% of the isolated bacteria were resistant to the antibiotics. Of all tested Antibiotics, ciprofloxacin and co-trimoxazole were the most and least effective against both Gram negative and Gram positive bacteria. The imprint technique has proved to be feasible and useful for surgical site wound microbial sampling for Resources-limited health settings. Hence we recommend routine surgical site wound sampling prior antibiotic prescription to prevent further spread of antimicrobial Resistance.

392. **Mwambete KD, Wilbard SS. "antimicrobial resistance profiles of bacteria isolated from chicken droppings in Dar es Salaam."** ***International Journal of Pharmacy and Pharmaceutical Sciences.*** **2015; 7(9).**

Objective: To determine resistance profiles of bacteria isolated from chicken droppings. **Methods:** It was a cross-sectional study involving collection of fresh chicken droppings from 100 chickens from 13 localities; followed by microbiological analysis using standard procedures. Multiple antibiotic resistance indices (MAR) were also determined for each of the isolated bacteria. **Results:** A total of 188 bacteria were isolated and subjected to susceptibility testing against 9 commonly used antibiotics. All tested bacteria exhibited multiple resistance to the antibiotics with MAR rates in this order *Escherichia coli>Pseudomonas aeruginosa>Klebsiellapneumoniae>Staphylococcus aureus*. More than half of *P. aeruginosa* and *Salmonella typhi* isolates were resistant to Ceftriaxone and Amikacin, while 77% of *K. pneumonia* isolates were resistant to Chloramphenicol. **Conclusion:** High rates of antibiotic resistance were observed to clinically used antibiotics among the isolated bacteria; suggesting that chicken rearing may serve as the reservoir of antibacterial resistant bacteria transmissible to human through the food chain.

393. **Mwambete KD. "Targeting microbial virulence factors: potential alternative to evade the antimicrobial resistance threats."** ***Strategies.*****2015*****; 4*****: 5.**

The search for antibiotics began in the 18th century, when the germ theory of disease linked bacteria and other Microorganisms to the causation of a variety of ailments. Consequently, scientists began to search for antimicrobial Agents that would kill the diseases-causing microorganisms. The aim of such exploration was to find so-called "magic Bullets" that would destroy microorganisms without toxicity to the person taking the antimicrobial agent [1, 2]. ''Antibiotics are probably one of the most successful forms of chemotherapy in the history of medicine'' [3]. Needless to say how many lives they have saved and how meaningfully they have contributed to the management and Control of microbial infectious diseases that were the leading causes of human illness and death. As oppose to the Common belief that the exposure to antibiotics is limited to the contemporary "antibiotic era," researches have revealed That this is not the case. The traces of some antibiotics such as tetracycline have been discovered in human skeletal Remains from ancient Sudanese Nubia dated 350 to 550 AD [4]. The distribution of tetracyclines in skeleton is only Justifiable after exposure to tetracycline-containing materials in the meals of these ancient people [3, 5]. Likewise, antimicrobial activity seems present in a number of other herbs used in traditional Chinese medicine [6] and the discovery of active compounds in the ancient remedies may enrich the arsenal of antimicrobials used by the Conventional medicine. Simultaneously, selective pressures exerted by these antimicrobial activities during the longterm History of traditional Chinese medicine may have been one of the factors that contributed to the accumulation of Antibiotic resistance genes in modern human medicine. Microorganisms just like any other living entities evolve and Thus obey the Darwinian Theory of Evolution ''survival of the fittest'' [7]. Therefore, in order to survive Microorganisms have been re-inventing better mode of invading their hosts.

394. **Mwangome M, Geubbels E, Klatser P, Dieleman M. Health Care for Diabetes in Rural Tanzania.** ***3rd MUHAS Scientific Conference, 2015.***

Background: In 2012Tanzania's adult national diabetes prevalence was estimated at 9.1%, but only 9% of rural facilities in the country provided diabetes services. **Aim:** To

determine how diabetes services in a rural district of Tanzania are delivered. **Methods:** We performed a qualitative study of health provider's perspectives. Providers were purposively sampled from four health facilities of different levels along a referral chain in a rural district. In-depth interviews, knowledge questionnaires and a facility survey involving observation, document reviews and interviews were used. Information was triangulated from different sources and using different methods for validation, in Nvivo 10.0. **Results:** Diabetes services were available at district and referral levels only. Continuity of care was dis-jointed both within and between facilities and providers felt ill-prepared in terms of, knowledge, skills, equipment and work aids including frequent lack of medication. The patient health information system for diabetes was unreliable. Furthermore, patient and service quality monitoring and support for patient self-management were weak. **Conclusion:** The district was not prepared for diabetes care delivery. Care at higher levels only made services in rural areas inaccessible and expensive hence increasing inequity Improving access and quality of diabetes care for chronically ill patients in rural areas requires interventions in areas of community involvement, human resources, and referral and information systems. Chronic care for HIV and TB has been rolled out to primary level facilities in Tanzania and health services for NCDs including diabetes could be hinged on these experiences in the spirit of integration.

395. Mwanri AW, Joyce K, Ramaiya L. High blood pressure and associated risk factors among women attending antenatal clinics in Tanzania:*Journal of hypertension.* 2015. 33(5): 940-947.

Aim: Hypertension during pregnancy (HDP) is one of the leading causes of maternal and perinatal mortality worldwide. This study examined prevalence and potential risk factors for HDP among pregnant women in Tanzania. **Methods**: We examined 910 pregnant women, aged at least 20 years, mean gestational age 27 weeks, from rural (n=301) and urban (n =609) areas, during their usual antenatal clinic visits. Hypertension was defined as clinic SBP at least 140 mmHg or DBP at least 90 mmHg. Dietary assessment included dietary diversity score using 16 food groups. Multiple logistic regression analysis was used to assess the independent association of risk factors associated with prevalence of hypertension. **Results**: A total of 62 women (6.9%) had HDP, prevalence being higher in

urban (8.1%) compared to rural area (4.4%). For the urban area, mother's age [odds ratio (OR) 1.10, 95% confidence interval (CI) 1.03–1.20], gestational age (OR 1.10, 95% CI 1.02–1.20), mid-upper arm circumference (OR 1.13, 95% CI 1.01–1.23), dietary diversity score (OR 1.31, 95% CI 1.20–1.60) and being HIV-positive (OR 2.40, 95% CI 1.10–5.18) were independently associated with HDP. When adjusted for proteinuria, associations with HIV status and mid-upper arm circumference weakened. In the rural area, HDP risk increased with age and gestational age. **Conclusion**: Prevalence of HDP was higher in urban compared to rural area, which points at high risk for preterm delivery, low birth weight and future cardiovascular diseases. The observed risk factors identify risk groups to be screened and targeted for prevention. The role of HIV status needs to be further explored.

396. Mwanri AW, Kinabo J, Ramaiya K, Feskens EJ. Gestational diabetes mellitus in sub-Saharan Africa: systematic review and metaregression on prevalence and risk factors. *Tropical Medicine & International Health*. . 2015. *20*(8): 983-1002.

Objective.We systematically reviewed publications on prevalence and risk factors for gestational diabetes mellitus (GDM) in the 47 countries of sub-Saharan Africa. **Methods:** We conducted a systematic search in PUBMED and reviewed articles published until June 2014 and searched the references of retrieved articles. We explored sources of heterogeneity among prevalence proportions with metaregression analysis. **Results**: Of 1069 articles retrieved 22 studies were included. Half were from West Africa, specifically Nigeria, five from South Africa and six from East and Central Africa. There were differences in screening methods and diagnosis criteria used, even between studies carried out in the same country and same time period. Met regression analysis indicated high heterogeneity among the studies ($I^2 = 100$, $P < 0.001$), which could not be sufficiently explained by study setting, population, diagnostic criteria or time trend, although we observed a relatively higher prevalence in studies carried out after 2000 (5.1% *vs*. 3.2%), when women at risk were selected (6.5% *vs*. 3.8%) and when more current diagnostic criteria were used (5.1% *vs*. 4.2%). Associations with risk factors were reported in six studies. Significant risk factors reported in more than one study were overweight and/or obesity, family history for type 2 diabetes, previous stillbirth, previous macrosomic child and age >30 years. **Conclusions:** There are few studies on prevalence

and risk factors for GDM in Sub-Saharan Africa and heterogeneity is high. Prevalence was up to about 14% when high-risk women were studied. Preventive actions should be taken to reduce the short- and long-term complications related toGDM in Sub-Saharan Africa.

397. Mwansisya TE, Outwater AH, Liu Z. Perceived barriers on utilization of mental health services among adults in Dodoma Municipality–Tanzania. *Journal of Public Mental Health*. 2015; 14(2):79-93.

Purpose: The purpose of this paper is to determine perceived barriers to utilization of mental health services among adults in Dodoma Municipality, Tanzania. To improve the use of mental health services, identifying related perceived barriers is a key step. **Design/methodology/approach:** A concurrent mixed method model was used. Data were collected through face-to-face interviews (n=152) using a structured survey questionnaire. In addition in-depth interviews were conducted (n=10). The quantitative data were analyzed by using Epi info version 2002. Content analysis was used for analyzing qualitative data. **Findings:** The majority of respondents opted to use modern mental health facilities for mental illness treatment. They also used spiritual healing and other forms traditional methods including herbal medicines. The most frequently identified causes of mental illness were: drug abuse, being cursed and witchcraft, demons or evil spirit possession. The reported significant perceived barriers were stigma, economic, lack of transport, witchcraft, lack of awareness of mental health services, unemployment, and negative believes about professional cure. **Originality/value**: The option for mental health service utilization is influenced by the existing barriers on community and clients' perception. There is a need for mental health professionals and policy makers to integrate mental health into primary care. Mutual sharing of knowledge between mental health professionals and tradition healers is warranted. Further research on the attitudes toward mental health professional services and on effectiveness of traditional healers' services is indicated.

398. Mwidunda SA, Carabin H, Matuja WB, Winkler AS, Ngowi HA. A school based cluster randomised health education intervention trial for improving knowledge and

attitudes related to Taenia solium cysticercosis and taeniasis in Mbulu district, northern Tanzania. *PloS one*. 2015; 10(2):e0118541.

Taenia solium causes significant economic and public health impacts in endemic countries. This study determined effectiveness of a health education intervention at improving school children's knowledge and attitudes related to T. solium cysticercosis and taeniasis in Tanzania. A cluster randomised controlled health education intervention trial was conducted in 60 schools (30 primary, 30 secondary) in Mbulu district. Baseline data were collected using a structured questionnaire in the 60 schools and group discussions in three other schools. The 60 schools stratified by baseline knowledge were randomised to receive the intervention or serve as control. The health education consisted of an address by a trained teacher, a video show and a leaflet given to each pupil. Two post-intervention re-assessments (immediately and 6 months post-intervention) were conducted in all schools and the third (12 months post-intervention) was conducted in 28 secondary schools. Data were analysed using Bayesian hierarchical log-binomial models for individual knowledge and attitude questions and Bayesian hierarchical linear regression models for scores. The overall score (percentage of correct answers) improved by about 10% in all schools after 6 months, but was slightly lower among secondary schools. Monitoring alone was associated with improvement in scores by about 6%. The intervention was linked to improvements in knowledge regarding taeniasis, porcine cysticercosis, human cysticercosis, epilepsy, the attitude of condemning infected meat but it reduced the attitude of contacting a veterinarian if a pig was found to be infected with cysticercosis. Monitoring alone was linked to an improvement in how best to raise pigs. This study demonstrates the potential value of school children as targets for health messages to control T. solium cysticercosis and taeniasis in endemic areas. Studies are needed to assess effectiveness of message transmission from children to parents and the general community and their impacts in improving behaviours facilitating disease transmission.

399. **Mwita US. Clinical profile, treatment modalities and outcomes of bladder cancer patients at ocean road cancer institute. Master MMed (Clinical Oncology) *Dissertation 2015*. *Muhimbili University of Health and Allied Sciences*.**

Introduction: Urinary bladder cancer is a genitourinary tract malignancy that involves the urinary bladder. It is the most common uro-genital cancer in the world and it is more common in men than women. The incidence of bladder cancer has significant geographical variation. It is more prevalent in elderly people and is highly associated with cigarette smoking and Schistosoma Haematobium infection in endemic areas. The goal of this study is to provide information that will assist clinicians in offering the best care so as to improve bladder cancer treatment outcomes. The objective of the study: To describe the clinical profile, treatment modalities and outcomes of bladder cancer patients treated at Ocean Road Cancer Institute, Tanzania from 2008 -2013. **Methodology:** The study was hospital based cross - sectional study and was conducted at the Ocean Road Cancer Institute, including all patients with histological confirmation of urinary bladder cancer from 2008 – 2013, whose baseline characteristics were determined before beginning of treatment and at least one follow up visit post treatment to assess the outcome of treatment. Socio-demographic characteristic, disease and treatment profiles as well as the outcome of treatment were abstracted into a standardized form. **Results:** A total of 130 patient files were obtained for the study; and 35 were excluded due to incomplete information. Thus, 95 patients were included in the study for the final analysis, 47.4% were male and 52.6% were female with the ratio of 1:1.1. The mean age was 55.3 years. Majority of the patients had primary education or no formal education, 40% in each group, 74.7% peasants and 70.5% had history of schistosomiasis. About 34.7% had history of cigarette smoking and 14.7% had a history of chronic UTI. The most common presenting symptom was hematuria (95.8%), followed by dysuria (83.2%) and abdominal pain (78.9%). Squamous cell carcinoma was the most common histological type (62.15%) followed by transitional cell carcinoma (28.4%). All patients were in advanced stage, stage III (33.7%) and stage IV (66.3%). 57.9% were treated with radiotherapy alone. Only 12.6% had complete remission while 30.5% had incomplete remission, 24.2% had progressive/stable disease and 32.6% died of the disease. In this study it was found that histological grade and stage of the disease were the only factors that significantly affected the outcome; p=0.026 and p=0.025 respectively. **Conclusion:** The important risk factors were schistosomiasis and cigarette smoking. The majority had squamous cell carcinoma. The proportion of patients attaining complete remission

following treatment was low, and this was probably due to late disease presentation. Health education, improvement of health infrastructure is needed to reduce disease development and improve its diagnosis and treatment outcome.

CHAPTER TWO: AUTHOR NAMES (N-Z)

400. Naburi H, (et al.) "Class II pentalogy of Cantrell." ***BMC research notes. 2015;*** **8(1): 318.**

Background: Pentalogy of Cantrell is a rare syndrome, first described by Cantrell and co-workers in 1958. The syndrome is characterized by the presence of five major congenital defects involving the diaphragm, abdominal wall, the diaphragmatic pericardium, lower sternum and various congenital intra-cardiac abnormalities. The syndrome has never been reported in Tanzania, although may have been reported from other African countries. Survival rate of the complete form of pentalogy of Cantrell is as low as 20%, but recent studies have reported normal growth achieved by 6 years of age where corrective surgeries were done; showing that surgical repair early in life is essential for survival. Case presentation The African baby residing in Tanzania was referred from a district hospital on the second day of life. She was noted to have a huge omphalocele and ectopia cordis covered by a thin membrane, with bowels visible through the membrane and the cardiac impulse visible just below the epigastrium. Despite the physical anomaly, she appeared to saturate well in room air and had stable vitals. Her chest X-ray revealed the absence of the lower segments of the sternum and echocardiography showed multiple intra-cardiac defects. Based on these findings, the diagnosis of pentalogy of Cantrell was reached. On her fifth day of life, the neonate was noted to have signs of cardiac failure characterized by easy fatigability and restlessness during feeding. Cardiac failure treatment was initiated and she was discharged on parents' request on the second week of life. Due to inadequate facilities to undertake this complex corrective surgery, arrangements were being made to refer her abroad. In the meantime, her growth and development was satisfactory until the age of 9 months, when she ran out of the medications and succumbed to death. Her parents could no longer afford transport cost to attend the monthly clinic visits, where the infant was getting free

medication refill. **Conclusions:** The case reported here highlights that in resource limited settings; poor outcome in infants with complex congenital anomalies is a function of multiple factors. However, we believe that surgery would have averted mortality in this 9-month-old female infant. We hope to be able to manage these cases better in future following the recent establishment of cardiac surgery facilities at Muhimbili National Hospital.

401. **Naghavi M, Wang H, Lozano R, Davis A, Liang X, Zhou M, Vollset SE, Ozgoren AA, Abdalla S, Abd-Allah F, Aziz MI. Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2015; 385(9963):117-71.**

Background: Up-to-date evidence on levels and trends for age-sex-specifi c all-cause and cause-specifi c mortality is essential for the formation of global, regional, and national health policies. In the Global Burden of Disease Study 2013 (GBD 2013) we estimated yearly deaths for 188 countries between 1990, and 2013. We used the results to assess whether there is epidemiological convergence across countries. **Methods:** We estimated age-sex-specifi c all-cause mortality using the GBD 2010 methods with some refinements to improve accuracy applied to an updated database of vital registration, survey, and census data. We generally estimated cause of death as in the GBD 2010. Key improvements included the addition of more recent vital registration data for 72 countries, an updated verbal autopsy literature review, two new and detailed data systems for China, and more detail for Mexico, UK, Turkey, and Russia. We improved statistical models for garbage code redistribution. We used six different modelling strategies across the 240 causes; cause of death ensemble modelling (CODEm) was the dominant strategy for causes with sufficient information. Trends for Alzheimer's disease and other dementias were informed by meta-regression of prevalence studies. For pathogen-specifi c causes of diarrhoea and lower respiratory infections we used a counterfactual approach. We computed two measures of convergence (inequality) across countries: the average relative difference across all pairs of countries (Gini coefficient) and the average absolute difference across countries. To summarise broad findings, we used multiple decrement life-tables to decompose probabilities of death from birth to exact age 15 years, from

exact age 15 years to exact age 50 years, and from exact age 50 years to exact age 75 years, and life expectancy at birth into major causes. For all quantities reported, we computed 95% uncertainty intervals (UIs). We constrained cause-specific fractions within each age-sex-country-year group to sum to all-cause mortality based on draws from the uncertainty distributions. **Findings:** Global life expectancy for both sexes increased from 65.3 years (UI 65.0-65.6) in 1990, to 71.5 years (UI 71.0-71.9) in 2013, while the number of deaths increased from 47.5 million (UI 46.8-48.2) to 54.9 million (UI 53.6-56.3) over the same interval. Global progress masked variation by age and sex: for children, average absolute diff erences between countries decreased but relative diff erences increased. For women aged 25-39 years and older than 75 years and for men aged 20-49 years and 65 years and older, both absolute and relative diff erences increased. Decomposition of global and regional life expectancy showed the prominent role of reductions in age-standardised death rates for cardiovascular diseases and cancers in high-income regions, and reductions in child deaths from diarrhoea, lower respiratory infections, and neonatal causes in low-income regions. HIV/AIDS reduced life expectancy in southern sub-Saharan Africa. For most communicable causes of death both numbers of deaths and age-standardised death rates fell whereas for most non-communicable causes, demographic shifts have increased numbers of deaths but decreased age-standardised death rates. Global deaths from injury increased by 10.7%, from 4.3 million deaths in 1990 to 4.8 million in 2013; but age-standardised rates declined over the same period by 21%. For some causes of more than 100 000 deaths per year in 2013, age-standardised death rates increased between 1990 and 2013, including HIV/AIDS, pancreatic cancer, atrial fibrillation and flutter, drug use disorders, diabetes, chronic kidney disease, and sickle-cell anaemias. Diarrhoeal diseases, lower respiratory infections, neonatal causes, and malaria are still in the top five causes of death in children younger than 5 years. The most important pathogens are rotavirus for diarrhoea and pneumococcus for lower respiratory infections. Country-specific probabilities of death over three phases of life were substantially varied between and within regions. **Interpretation**: For most countries, the general pattern of reductions in age-sex specifi c mortality has been associated with a progressive shift towards a larger share of the remaining deaths caused by non-communicable disease and injuries. Assessing

epidemiological convergence across countries depends on whether an absolute or relative measure of inequality is used. Nevertheless, age-standardised death rates for seven substantial causes are increasing, suggesting the potential for reversals in some countries. Important gaps exist in the empirical data for cause of death estimates for some countries; for example, no national data for India are available for the past decade.

402. **Nagu TJ, Aboud S, Mwiru R, (at al) Multi Drug and Other Forms of Drug Resistant Tuberculosis Are Uncommon among Treatment Naïve Tuberculosis Patients in Tanzania. *PloS one*. 2015; *10(4), e0118601*.**

Background: Surveillance and effective management of drug resistance is important to sustaining tuberculosis (TB) control efforts. We aimed to determine resistance rates to first line anti tuberculosis drugs and to describe factors associated with the resistance to any of the first line anti tuberculosis drugs in Dar es Salaam Tanzania. **Materials:** Newly diagnosed, TB patients with neither history of tuberculosis treatment nor ionized prophylaxis were included into the study. Sputum specimens were cultured on either mycobacterium growth indicator tube 960 (MGIT 960) or Lowenstein Jenstein (LJ) medium supplemented with either glycerol (GLJ) or private (PLJ). Drug susceptibility for isoniazid, rifampicin, streptomycin and ethambutol was determined by either Lowenstein–Jensen (LJ) medium or mycobacterium growth indicator tube 960 (MGIT 960). **Results:** A total of 933 newly diagnosed TB patients, were included into the study. Multi drug resistance (MDR) tuberculosis was detected among 2 (0.2%) patients. Resistance to any of the four tested drugs was detected among 54 (5.8%) patients. Mono-resistance to ionized, rifampicin, streptomycin and ethambutol were 21(2.3%), 3 (0.3%), 13 (1.4%), 9 (1.0%) respectively. **Conclusions:** Primary resistance to first line anti tuberculosis drugs is still low in this setting. Continued vigilance including periodic national surveillance of anti-tuberculosis resistance is recommended.

403. **Namisi F, Aarø LE, Kaaya S, Kajula LJ, Kilonzo GP, Onya H, Wubs A, Mathews C. Adolescents' Communication with Parents, Other Adult Family Members and Teachers on Sexuality: Effects of School-Based Interventions in South Africa and Tanzania. *AIDS and Behavior*. 2015; 19(12):2162-76.**

Cluster-randomized controlled trials were carried out to examine effects on sexual practices of school-based interventions among adolescents in three sites in sub-Saharan Africa. In this publication, effects on communication about sexuality with significant adults (including parents) and such communication as a mediator of other outcomes were examined. Belonging to the intervention group was significantly associated with fewer reported sexual debuts in Dar es Salaam only (OR 0.648). Effects on communication with adults about sexuality issues were stronger for Dar es Salaam than for the other sites. In Dar, increase in communication with adults proved to partially mediate associations between intervention and a number of social cognition outcomes. The hypothesized meditational effect of communication on sexual debut was not confirmed. Promoting intergenerational communication on sexuality issues is associated with several positive outcomes and therefore important. Future research should search for mediating factors influencing behavior beyond those examined in the present study.

404. **Naveed M, Shafiq M, Chaudhry MR, Zahid MA. Genetic diversity in new chickpea accessions for'fusarium'wilt resistance, canopy temperature and yield components under drought milieus. 2015.**

Chickpea 'fusarium' wilt is one of the major causes of low productivity under water deficit environments in Pakistan. Searching newly developed chickpea genotypes for the desirable recombinants possessing wilt resistance along with other yield components was the objective of this experiment. Sixty accessions were laid out in an alpha lattice design with two replications. Analysis of variance for various traits revealed significant diversity among the genotypes which can be exploited for the development of superior chickpea segregants in productivity improvement programs. High to moderate estimates of heritability and genetic advance were recorded for 'fusarium' wilt incidence, days to 50% flowering, total branches per plant, pods per plant, 100-seed weight, grain yield and harvest index. Significant relationship of grain yield with these characters was further established by means of principal component analysis. First four PCs out of total ten achieved eigenvalues > 1 and explained 75.5% of overall variability. Days to 50% flowering, 100-seed weight and grain yield contributed highest weight on PC1 that explained 31.80% of total variation. PC2 described 21.60% of digression and was mainly related to pods per plant, plant height and canopy temperature. Cluster analysis classified

the genotypes into 3 clusters with maximum 33 genotypes in cluster II. Cluster I comprised of drought tolerant accessions based on canopy temperature while cluster III consisted of bold seeded genotypes regarding 100-seed weight. Cluster II incorporated wilt resistant, early flowering yet late maturing genotypes having highest pods per plant, grain yield and harvest index. D2 statistics further confirmed the versatility of cluster II genotypes over cluster I and III for most of the studied characters.

405. Ngalesoni F, Ruhago G, Norheim OF, Robberstad B. Economic cost of primary prevention of cardiovascular diseases in Tanzania. *Health policy and planning*. 2015; 30(7):875-84.

Tanzania is facing a double burden of disease, with non-communicable diseases being an increasingly important contributor. Evidence-based preventive measures are important to limit the growing financial burden. This article aims to estimate the cost of providing medical primary prevention interventions for cardiovascular disease (CVD) among at-risk patients, reflecting actual resource use and if the World Health Organization (WHO)'s CVD medical preventive guidelines are implemented in Tanzania. In addition, we estimate and explore the cost to patients of receiving these services. Cost data were collected in four health facilities located in both urban and rural settings. Providers' costs were identified and measured using ingredients approach to costing and resource valuation followed the opportunity cost method. Unit costs were estimated using activity-based and step-down costing methodologies. The patient costs were obtained through a structured questionnaire. The unit cost of providing CVD medical primary prevention services ranged from US$30–41 to US$52–71 per patient per year at the health centre and hospital levels, respectively. Employing the WHO's absolute risk approach guidelines will substantially increase these costs. The annual patient cost of receiving these services as currently practised was estimated to be US$118 and US$127 for urban and rural patients, respectively. Providers' costs were estimated from two main viewpoints: 'what is', that is the current practice, and 'what if', reflecting a WHO guidelines scenario. The higher cost of implementing the WHO guidelines suggests the need for further evaluation of whether these added costs are reasonable relative to the added benefits. We also found considerably higher patient costs, implying that distributive and equity implications of access to care require more consideration. Facility location surfaced as the main

explanatory variable for both direct and indirect patient costs in the regression analysis; further research on the influence of other provider characteristics on these costs is important.

406. **Ngarina M, Kilewo C, Karlsson K, Aboud S, Karlsson A, Marrone G, Leyna G, Ekström AM, Biberfeld G. Virologic and immunologic failure, drug resistance and mortality during the first 24 months postpartum among HIV-infected women initiated on antiretroviral therapy for life in the Mitra plus Study, Dar es Salaam, Tanzania. *BMC infectious diseases*. 2015; 15(1):1.**

Background: In the Mitra plus study of prevention of mother-to-child transmission of HIV-1, which included 501 women in Dar es Salaam, Tanzania, triple antiretroviral therapy (ART) was given from late pregnancy throughout breastfeeding up to 6 months postnatally. Here we report findings in a sub-cohort of women with ≤200 CD4cells/μL at enrolment who were continued on ART for life and followed up during 24 months after delivery to determine virologic and immunologic responses, drug resistance and mortality. **Methods:** Blood samples for viral load and CD4 counts testing were collected at enrolment and at 3, 6, 12 and 24 months postpartum. HIV drug resistance testing was performed at 12 months. Data analysis included descriptive statistics and multivariate analysis using Generalized Estimated Equations of 73 women with at least two postpartum assessments. The mortality analysis included 84 women who had delivered. **Results:** The proportion of women with a viral load ≥400 copies/mL was 97% (71/73) at enrolment, 16% (11/67), 22% (15/69), 61% (36/59) and 86% (48/56) at 3, 6, 12 and 24 months postpartum, respectively. The proportion of women with immunologic failure was 12% (8/69), 25% (15/60) and 41% (24/58) at 6, 12 and 24 months, respectively. At 12 months, drug resistance was demonstrated in 34% (20/59), including 12 with dual-class resistance. Self-report on drug adherence was 95% (64/68), 85% (56/66), 74% (39/53) and 65% (30/46) at 3, 6, 12 and 24 months, respectively. The mortality rate was 5.9% (95% CI 2.5-13.7%) at 24 months. The probability of virologic and immunologic failure was significantly higher among women who reported non-perfect adherence to ART at month 24 postpartum. **Conclusions:** Following an initial decline of viral load, virologic failure was common at 12 and 24 months postpartum among women initiated on ART for life during pregnancy because of low CD4 cell counts. A high proportion of

viremic mothers also had resistance mutations. However, at 24 months follow-up, the mortality rate was still fairly low. Continuous adherence counseling and affordable means of monitoring of the virologic response are crucial for successful implementation of the WHO Option B+ guidelines to start all HIV-infected pregnant women on ART for life.

407. **Ngarina M, Tarimo E, Naburi H, Charles K, Sando M, Chalamilla G, Biberfeld G, Ekstrom A. Women's preferences regarding infant or maternal antiretroviral prophylaxis for prevention of mother-to-child transmission of HIV during breastfeeding and their views on Option B+ in Dar es Salaam, Tanzania**. ***3rd MUHAS Scientific Conference, 2015.***

Background: The WHO 2010 guidelines for prevention of mother-to-child transmission (PMTCT) of HIV recommended prophylactic antiretroviral treatment (ART) either for infants (Option A) or mothers (Option B) during breastfeeding for pregnant women with a CD4 count of >350 cell/µL in low-income countries. In 2012, WHO proposed that all HIV-infected pregnant women should receive triple ART for life (B+) irrespective of CD4 count? Tanzania has recently switched from Option A to B+, with a few centers practicing B. However, more information on the real-life feasibility of these options is needed. This qualitative study explored women's preferences for Option A vs B and their views on Option B+ in Dar es Salaam, Tanzania. **Methods:** Afour focus group discussions were conducted with a total of 27 pregnant women with unknown HIV status, attending reproductive and child health clinics, and 31 in-depth interviews among HIV-infected pregnant and post-delivery women, 17 of whom were also asked about B+. **Results:** Most participants were in favor of Option B compared to A. The main reasons for choosing Option B were: HIV-associated stigma, fear of drug side-effects on infants and difficult logistics for postnatal drug adherence. Some of the women asked about B+ favored it as they agreed that they would eventually need ART for their own survival. Some were against B+ anticipating loss of motivation after protecting the child, fearing drug side-effects and not feeling ready to embark on lifelong medication. Some were undecided. **Conclusion:** Option B was preferred. Since Tanzania has recently adopted Option B+, women with CD4 counts of > 350 cell /µL should be counseled about the possibility to "opt-out" from ART after cessation of breastfeeding. Drug safety and benefits, economic concerns and available resources for laboratory monitoring and

evaluation should be addressed during B+ implementation to enhance long-term feasibility and effectiveness.

408. Ngasala B, Nahla B, Stepniewska K, Dahal P, Nsanzabana C, Moriera C, Price R, Mårtensson A, Rosenthal P, Dorsey G, Sutherland C, Guérin P, Sibley C, Plowe C. Polymorphisms in pfcrt and pfmdr1: risk factors that affect treatment outcomes after artemether-lumefantrine and artesunate-amodiaquine for falciparum malaria. *3rd MUHAS Scientific Conference,* 2015.

Background: The initial reduction in peripheral parasitemia following artemisinin-based combination therapy (ACT) for Plasmodium falciparum malaria appears to be driven predominantly by the potency of the artemisinin component, whereas the prevention of recrudescence depends on the efficacy of the longer-acting partner drug. Polymorphisms in pfcrt and pfmdr1 are associated with decreased sensitivity to amodiaquine and lumefantrine, respectively. However, the effects of these polymorphisms on therapeutic responses to artesunate-amodiaquine (ASAQ) and artemether-lumefantrine (AL) have not been clearly defined. **Objectives**: To assess the roles of pfcrt and pfmdr1 polymorphisms in ACT efficacy, individual patient data from 31 clinical trials were harmonized and pooled, using standardized methodology from the WorldWide Antimalarial Resistance Network (WWARN). **Methodology**: Data from more than 7000 patients were analyzed to assess relationships between polymorphisms in pfcrt and pfmdr1 and outcomes after treatment with AL or ASAQ. **Results**: Presence of pfmdr1 N86 and elevated pfmdr1 copy number were significant risk factors for recrudescent infections in patients treated with AL. AL and ASAQ exerted opposing selection on SNPs in pfcrt and pfmdr1 in recurring infections. Moreover, in patients treated with AL, parasites carrying pfmdr1 N86 or pfcrt K76 alleles reappeared one week earlier than parasites with pfmdr1 86Y or pfcrt 76T. Opposite results were observed after treatment with ASAQ; parasites with pfcrt 76T recurred earlier than those carrying pfcrt 76K. **Conclusion**: The opposing selective pressures of AL and ASAQ may have implications for the selection of antimalarial drugs. Monitoring selection and responding to potential early signs of drug resistance such as those described here are critical tools for preserving ACT efficacy.

409. **Ngasala B. Defining therapeutic day 7 lumefantrine concentration thresholds in uncomplicated falciparum malaria. *3rd MUHAS Scientific Conference, 2015.***

Background: Achieving adequate antimalarial drug exposure is essential for the cure of malaria. Artemether-lumefantrine is the most widely used artemesinin-based combination for treatement of uncomplicated Plasmodium falciparum malaria. The day 7 lumefantrine concentration is a simple measure of drug exposure associated with treatment response. However, the 'therapeutic' thresholds published to date range from 170 ng/mL to 500 ng/mL, suggesting that this needs to be better defined for key target and parasite populations. Individual studies are generally underpowered to accurately define the minimum drug exposure required to achieve a cure. **Methods:** To assess the relationship between lumefantrine exposure and therapeutic responses to artemether-lumefantrine in uncomplicated falciparum malaria, the pharmacology module of the WorldWide Antimalarial Resistance Network (WWARN) has conducted the largest ever pooled analysis of individual patient antimalarial PK-PD data, initially focusing on the day 7 lumefantrine concentrations. **Results:** Day 7 lumefantrine concentrations and treatment responses were available for 2,715 patients from 23 studies. PCR confirmed recrudescence and P. falciparum reinfection during follow-up occurred in 87 and 395 patients, respectively.. The main correlates of recrudescence risk were Day 7 lumefantrine concentration [HR 0.511 (95% CI 0.411-0.635), p<0.001] and baseline parasitaemia [HR 2.123 (95%CI 1.429-3.154), p<0.001]. Adjusted for mg/kg dose, day 7 lumefantrine concentrations in children <5years of age were 33% lower than in older patients. Day 7 Lumefantrine concentrations were 81% higher with supervised than unsupervised treatment. The highest risk of recrudescence was observed in areas with decreased artemisinin suscepatibilty, very low transmission intensity, and in underweight-for-age children <5 years in areas with moderate/high transmission intensity. To achieve 95% efficacy in these high risk groups, Day 7 lumefantrine concentrations up to >1000 ng/ml (depending on baseline parasitaemia) would be required. For all other populations studied, Day 7 concentrations above 200 ng/ml appear sufficient. **Conclusions:** Current artemether-lumefantrine dosing recommendations are adequate for most patients. However, alternative dosing strategies need to be evaluated in underweight-for-age young children. In areas with decreased artemisinin susceptibility,

and the very low transmission areas we studied, it is unlikely that effective artemether-lumefantrine concentrations could be achieved, so alternative treatments should be considered.

410. **Ngasala B. Phase II Evaluation of three rapid diagnostic tests (CareStart™ Malaria HRP-2, pLDH [Pf-pLDH/pan-pLDH] and HRP-2/pLDH (Pf/pan) Combo Tests) for the diagnosis of malaria. *3rd MUHAS Scientific Conference,* 2015.**

Background: This study was aimed at testing the diagnostic performance of three malaria rapid diagnostic tests (RDTs) (CareStart™ Malaria HRP-2, pLDH [Pf-pLDH/pan-pLDH] and HRP-2/pLDH (Pf/pan) Combo Test) with reference to light microscopy for the diagnosis of falciparum malaria in Tanzania. **Methods:** Blood samples were collected from 627 patients suspected to have malaria at Miswe, and Yombo (Bagamoyo District) and Muhoro and Ikwiriri (Rufiji District) Health Centers from October 2013 to December 2013. The samples were examined immediately by light microscopy and the CareStart™RDTs. Statistical analysis was performed using Stata version 11. **Results:** Overall 222 of 627 (35.45%) malaria suspected cases were detected by microscopy compared to 221 of 627(35.25%) by CareStart™ Combo kit, 216 of 627 (34.45%) by both HRP-2 and PLDH RDT kits. CareStart™Combo RDT kit's sensitivity and specificity for the diagnosis of malaria were 99.5% (97.5%-100%, 95% CI) and 100% (99.1%-100%, 95% CI) respectively, compared to standard microscopy. The sensitivity and specificity of CareStart™ HRP-2 and PLDH were both found to be 97.3% (94.2%- 99%, 95% CI) and 100 %(99.1%-100%, 95% CI), respectively. All the three CareStart™ RDT kits had the same positive predictive values of 100% (98.3%-100%, 95% CI). The CareStart™Combo RDT kit's had negative predictive value of 99.8% (98.6%-100%) compared to 98.5% (96.8%- 99.5%) for CareStart™ HRP-2 and PLDH kits. **Conclusion:** The CareStart™ Malaria tests (CareStart™ Malaria HRP-2, pLDH [Pf-pLDH/pan-pLDH] and HRP-2/pLDH (Pf/pan) Combo Test) had good accuracy comparable to gold standard microscopy. The RDT could therefore be used in place of light microscopy, at primary health care facilities.

411. **Ngatoluwa M, Munseri P, Bakari M, Pallangyo K, Aboud S, Candida Moshiro C, Sandstrom E, Mhalu F. A High Baseline Morbidity among Adult Volunteers for**

HIV Vaccine Trial in Dar Es Salaam, Tanzania. ***3rd MUHAS Scientific Conference,* 2015.**

Background: Sub Saharan Africa has the largest burden of HIV related disease in the world and hence it is important that communities in this part of the world participates in efforts aimed at controlling HIV infections including clinical trials of candidate HIV vaccines. People wanting to participate in HIV vaccine trials need to be healthy and hence. We report baseline morbidity among 235 volunteers screed for participation in an EDCTP sponsored HIV vaccine trial (TaMoVac II) in Dar es salaam, Tanzania. **Methods:** The TaMoVac I trial recruited participants from the Police , Prisons forces and youth at the youth clinic in Dar Es salaam from March 2010 and June 2012,Tanzania. Volunteers underwent screening that included assessment of understanding followed by screening risky sexual behavior, medical history, physical examination, ECG and laboratory investigations that included a complete blood count, kidney and liver function test, serology for syphilis, hepatitis B and HIV and urine dipstick and pregnancy testing to determine eligibility prior enrolment. **Results:** During the period of March 2010 –June 2012, two hundred and thirty five (235) volunteers underwent baseline investigations to determine their suitability for participation in the trial. 23/235 (14%) had abnormal laboratory tests. Of the 23 volunteers with abnormal laboratory tests, 13 (39%) were HBsAg positive. Other findings were as follows: anemia 8 (24%), 3(9%) positive HIV test, 2 (6%) elevated creatinine, low platelet and WBC count, 10/92 (10.9%) had abnormal ECG.**Conclusion:** The prevalence of HBsAg, anemia and abnormal ECG in this cohort was high and provides a window of opportunity for intervention.

412. **Ngerageza JG, Kiyoshi IT, Aoyama T, Murata T, Horiuchi T, Hongo K. Posterior Laminoplastic Laminotomy Combined with a Paraspinal Transmuscular Approach for Removing a Lumbar Dumbbell-shaped Schwannoma: *A Technical Note. Neurologia medico-chirurgica*. 2015; 55(9):756**.

The surgical strategies and methods used to treat dumbbell-shaped tumors located in the lumbar-foraminal region are controversial. Although a total facetectomy and combined intra- and extraspinal canal approach provide a wide operative field, facet fusion is required, which can be rather invasive. Here, we report a successful removal of a lumbar

dumbbell-shaped schwannoma using a combined laminoplastic laminotomy with Wiltse's paraspinal surgical approach. This was performed under an operating microscope without a complete facetectomy, fusion, and posterior fixation. Briefly, we treated two patients with lumbar foraminal tumors, both dumbbell-shaped schwannomas located in the intra- and extradural portion. After a laminoplastic laminotomy, the intradural tumor was removed. The tumor located at the extracanalicular site was removed after drilling the pars interarticularis of the lamina, which was performed to enlarge the intervertebral foramen via Wiltse's paraspinal surgical approach. During surgery, facetectomy with posterior fixation was not needed to remove the intraforaminal component. There was no lumbar instability or complication after surgery. Our results suggest that a combined posterior laminoplastic laminotomy and Wiltse's paraspinal surgical approach is useful and less invasive for treating patients with lumbar foraminal tumors.

413. Ngoma TA. "Cancer Control in the Tropical Areas, Access to Expensive Treatments, and Ethical Considerations." Tropical Hemato-Oncology. *Springer International Publishing*. 2015; 25-35.

Cancer control describes the totality of activities and interventions intended to reduce the burden of cancer in a population, either by reducing cancer incidence or mortality or by alleviating the suffering of people with cancer. The activities and interventions undertaken to control cancer are not all conducted within the health-care system proper, nor do they always involve only health professionals. Furthermore, these activities require commitments of financial and human resources, including training and education to build the required human resource base and information for the public to understand what they can do and the services available to them. In spite of the fact that major breakthroughs have been realized in developed countries in controlling cancer in the past five decades, in tropical countries, many of these advances are nothing but an aspiration and hope for the future. At the moment, the greatest challenge tropical countries face is the prohibitive cost of cancer drugs and how to reconcile small, incremental, and significant improvements in the management of cancer with the exponentially increasing costs of the new treatments. Cancer drugs are not affordable in most of the tropical countries. This makes access to cancer drugs and the concept of "resource-level appropriate" issues which should be seriously considered. Since there are no fixed criteria

for determining when a cancer drug can be described as expensive or not, a threshold cost of treatment for 1 year that is 50 % or greater than the per capita GDP of the country is considered as expensive. This means that based on the current costs of cytotoxic drugs, all cancer treatments are expensive in tropical countries. The evidence for this is the fact that it is not uncommon in tropical countries to see desperate families taking desperate measures to raise money to pay out of pocket for expensive cancer treatments. These families are forced to sell their homes, sell their land, work extra jobs, or rely on the charity of their family members, church, or community to secure specialty cancer drugs or other expensive treatments for a loved one. Since there is no health-care system which can provide every medical intervention that offers a prospect of health benefit to everyone, all of the time, equity should not be ignored. For example, how and on what basis can doctors in tropical countries deny potentially beneficial care to some patients and give the same treatment to other patients? One way of dealing with this difficult situation is to put in place limits and rationing mechanism overseen by a committee of respected professionals. Experience in some tropical countries has revealed that in spite of having limits and rationing mechanisms in place, the wealthy and ruling elite circumvent whatever limits or rationing mechanism is in place with impunity in order to secure access to technologies that confer (or are perceived to confer) medical benefits, no matter how costly using tax payers' money. This inequity is unacceptable and is morally and ethically undesirable.

414. Nicks B, Henley J, Mfinanga J, Manthey D. Neurologic emergencies in resource-limited settings: A review of stroke care considerations. *African Journal of Emergency Medicine*. 2015; 5(1):37-44.

Background: The current guidelines and evidence supporting acute stroke management have limitations in resource austere environments despite being a leading cause of death worldwide. Developing countries face a rapidly increasing and disproportionate burden of cerebrovascular disease yet differences in setting and resource limitations bring challenges that have a major influence in management options – especially with routine imaging and interventional considerations. In addition, general awareness, diagnosis and management of stroke remain poor. **Objectives:** To outline current acute stroke management and critical interventions that should be integrated into current practice

while highlighting resource-limited care considerations. **Methods:** A systematic search of Ovid MEDLINE and reference lists of the literature on stroke, guidelines, and acute stroke management including care considerations in resource-limited settings was conducted through March 2014. **Recommendations:** Within emergency medicine, emphasis should be placed on establishing a robust stroke assessment and care process that is resource appropriate and scalable. Adherence as resources allow to current stroke care guidelines including acute management, stroke center coordination, palliation and resource allocation may improve outcomes. Further research related to resource-limited management is essential. Risk reduction through population-based interventions and early recognition may help to reduce the burden of disease.

415. **Nilsson C, Aboud S, Bakari M, Lyamuya EF, Robb ML, Marovich MA, Mhalu F. Potent functional antibody responses elicited by HIV-I DNA priming and boosting with heterologous HIV-1 recombinant MVA in healthy Tanzanian adults. *PloS one*. 2015. *10*(4): e0118486.**

Vaccine-induced HIV antibodies were evaluated in serum samples collected from healthy Tanzanian volunteers participating in a phase I/II placebo-controlled double blind trial using multi-clade, multigene HIV-DNA priming and recombinant modified vaccinia Ankara (HIV-MVA) virus boosting (HIVIS03). The HIV-DNA vaccine contained plasmids expressing HIV-1 gp160 subtypes A, B, C, Rev B, Gag A, B and RTmut B, and the recombinant HIV-MVA boost expressed CRF01_AE HIV-1 Env subtype E and Gag-Pol subtype A. While no neutralizing antibodies were detected using pseudo viruses in the TZM-bl cell assay, this prime-boost vaccination induced neutralizing antibodies in 83% of HIVIS03 vaccinees when a peripheral blood mononuclear cell (PBMC) assay using luciferase reporter-infectious molecular clones (LucR-IMC) was employed. The serum neutralizing activity was significantly (but not completely) reduced upon depletion of natural killer (NK) cells from PBMC (p=0.006), indicating a role for antibody-mediated Fcγ-receptor function. High levels of antibody-dependent cellular cytotoxicity (ADCC)-mediating antibodies against CRF01_AE and/or subtype B were subsequently demonstrated in 97% of the sera of vaccines. The magnitude of ADCC-mediating antibodies against CM235 CRF01_AE IMC-infected cells correlated with neutralizing antibodies against CM235 in the IMC/PBMC assay. In conclusion, HIV-DNA priming,

followed by two HIV-MVA boosts elicited potent ADCC responses in a high proportion of Tanzanian vaccinees. Our findings highlight the potential of HIV-DNA prime HIV-MVA boost vaccines for induction of functional antibody responses and suggest this vaccine regimen and ADCC studies as potentially important new avenues in HIV vaccine development.

416. **Nilsson C, Joachim A, Aboud S (et al). "Potent functional antibody responses elicited by HIV-I DNA priming and boosting with heterogonous HIV-1 recombinant MVA in healthy Tanzanian adults."** ***PloS one.*** **2015; 10(4): e0118486.**

Vaccine-induced HIV antibodies were evaluated in serum samples collected from healthy Tanzanian volunteers participating in a phase I/II placebo-controlled double blind trial using multi-clade, multigame HIV-DNA priming and recombinant modified vaccinia Ankara (HIV-MVA) virus boosting (HIVIS03). The HIV-DNA vaccine contained plasmids expressing HIV-1 gp160 subtypes A, B, C, Rev B, Gag A, B and RTmut B, and the recombinant HIV-MVA boost expressed CRF01_AE HIV-1 Env subtype E and Gag-Pol subtype A. While no neutralizing antibodies were detected using pseudo viruses in the TZM-bl cell assay, this prime-boost vaccination induced neutralizing antibodies in 83% of HIVIS03 vaccines when a peripheral blood mononuclear cell (PBMC) assay using luciferase reporter-infectious molecular clones (LucR-IMC) was employed. The serum neutralizing activity was significantly (but not completely) reduced upon depletion of natural killer (NK) cells from PBMC (p=0.006), indicating a role for antibody-mediated Fcγ-receptor function. High levels of antibody-dependent cellular cytotoxicity (ADCC)-mediating antibodies against CRF01_AE and/or subtype B were subsequently demonstrated in 97% of the sera of vaccines. The magnitude of ADCC-mediating antibodies against CM235 CRF01_AE IMC-infected cells correlated with neutralizing antibodies against CM235 in the IMC/PBMC assay. In **conclusion:** HIV-DNA priming, followed by two HIV-MVA boosts elicited potent ADCC responses in a high proportion of Tanzanian vaccines. Our findings highlight the potential of HIV-DNA prime HIV-MVA boost vaccines for induction of functional antibody responses and suggest this vaccine regimen and ADCC studies as potentially important new avenues in HIV vaccine development.

417. **Njelekela MA, Muhihi A, Mpembeni R (et al.) "Knowledge and attitudes towards obesity among primary school children in Dar es Salaam, Tanzania."** ***Nigerian medical journal: journal of the Nigeria Medical Association.2015;*** **56(2): 103-2015.**

Background: Childhood obesity has increased over the past two decades. Child obesity is likely to persist through adulthood and increases the risk of non-communicable diseases (NCDs) later in life. This study assessed knowledge and attitudes towards obesity among primary school children in Dar es Salaam, Tanzania. **Materials and Methods:** A cross-sectional study was conducted in randomly selected primary schools in Dar es Salaam. A structured questionnaire was used to assess the knowledge and attitudes. Anthropometric and blood pressure measurements were taken using standard procedures. **Results:** A total of 446 children were included in the analysis. The mean age of the participants was 11.1 ± 2.0 years. The mean body mass index (BMI), systolic blood pressure (SBP) and diastolic blood pressure (DBP) were 16.6 ± 4.0 kg/m^2, 103.9 ± 10.3 mmHg and 65.6 ± 8.2 mmHg, respectively. Prevalence of obesity (defined as BMI >95^{th} percentile for age and sex) was 5.2%. Half of the children (51.1%) had heard about obesity from teachers at school (20%), radio (19.4%) and books/newspaper (17.3%). Less than half (45.4%) had knowledge about the risk factors for childhood obesity and correctly defined obesity (44.6%). However, a good number of the children (72.1%) were aware that they can be affected by obesity. Majority of them had negative attitude towards obesity and various factors leading to or resulting from childhood obesity. **Conclusions:** Knowledge about childhood obesity among primary school children is moderate and have negative attitude towards obesity. Integrating educational programs early in primary schools may be an effective strategy to impact knowledge about obesity and other non-communicable diseases early in childhood.

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419. **Nkandala I. Prevalence of coronary artery disease and associated factors among adults with type 2 diabetes mellitus at Muhimbili National Hospital. . Master (Internal Medicine)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Introduction: Estimates of current and future diabetes prevalence worldwide and particularly in Africa consistently indicate substantial increase of the disease. At the same time cardiovascular diseases comprising of coronary artery disease and cerebro-vascular diseases are currently the leading cause of death globally and they are on the increase in Africa. Diabetes is an important risk factor for development of coronary artery disease as well as its mortality. However different countries have reported different prevalence rates of coronary artery disease in patients with diabetes mellitus **Objectives:** This study determined the prevalence and predictors of coronary artery disease among adults with T2DM at MNH. **Methods:** A cross-sectional hospital based approach was used. Angina

and ischemic ECG changes were used as a proxy for coronary heart disease among 275 randomly selected patients with T2DM attending the MNH diabetic clinic. **Results and Recommendations:** The prevalence of angina by the WHO Rose questionnaire was found to be 16%. The prevalence of probable ECG ischemia was found to be 4.4% while that of possible ECG ischemia was 11.5%. In addition, the following associated factors were established: diabetes duration of more than 10 years, history of erectile dysfunction, and history of intermittent claudication, cholesterol level, systolic BP, BMI and ABI. It is recommended that patients with these characteristics should be actively investigated for coronary disease and appropriate measures taken to reduce cardiovascular complications.

420. **Nkonya ND. Use of rapid diagnostic tests for malaria diagnosis under reduced malaria burden and its influence on malaria case management in Misungwi District, Mwanza Tanzania. Master (Applied Epidemiology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences***

Background: Although use of malaria rapid diagnostic test (mRDT) for malaria confirmation has universally been adopted for the management of febrile under-fives in malaria endemic settings, it is unclear to what extent this guides the management of malarial and non-malarial fevers under reduced malaria burden. The decline in malaria in sub-Saharan Africa, including Tanzania further emphasizes the need for parasitological confirmation of malaria among febrile under-fives. However, the decline in malaria prevalence may conceivably alter the diagnostic performance of mRDT. This study examined the performance mRDT under reduced malaria burden, and its influence on the management of febrile under-fives. **Objectives:** To assessed diagnostic performance of mRDT and its influence on the management of malarial and non-malarial fevers under reduced burden of malaria. Methods: A cross-sectional study carried in Misungwi district, Mwanza from November – December 2014. Consecutive under-fives with 48 hours history of fever were recruited from six health facilities; for every under-five, fever was measured by digital thermometer, mRDT was taken and Giemsa stained thick and thin blood films taken for parasite count and species identification. Performance of fever, clinical malaria diagnosis and mRDT for prediction of malaria was assessed by performance indices using microscopy as the gold standard. Adherence to mRDT results

to guide case management of malaria and non-malarial fevers was also accessed, as well as availability of ACT and mRDT. **Findings**: A total of 600 febrile under-fives from Misungwi were included in the analysis. According to mRDT, the malaria and non-malarial fever were 32% and 68% respectively, whereas by microscopy only 17% were confirmed to be malaria fevers. The performance indices in terms of sensitivity and specificity were 99.02%, 80.72% for mRDT, 97.06%, 66.67% for Clinical malaria and 61.76%, 61.04% for measured fever respectively. Rapid Diagnostic Test was seen to influence the correct treatment of both malarial and non-malarial fevers, as 97% of mRDT positive children were prescribed with ACTs compared to only 16% in the mRDT negative children. Antibiotic prescription was also influenced by mRDT results, where 93% of the mRDT negative were prescribed with antibiotics as compared to 51% of those with mRDT positive. **Conclusion and recommendations:** The findings in this study are comparable to previous studies, whereby in terms of performance of mRDT there is no demonstrated difference compared to performance in previous studies. Rapid diagnostic tests was demonstrated to influence the management of both fevers in a positive way, though some clinicians are still not adhering to the national malaria guidelines by prescribing ACT to mRDT negative children and antibiotics to mRDT positive children. There is a need for clinician to be trained so that, in the availability of mRDT, they prescribe ACT's to confirmed cases only.

421. Nondo R, Moshi M, Erasto P, Zofou D, Wanji S, Titanji V, Ngemenya M, Kidukuli A, Masimba P. Documentation and Invitro Antimalarial Activity of Medicinal Plants used to treat Malaria in Tanzania. *3rd MUHAS Scientific Conference, 2015.*

Background: Tanzania is among the six African countries with many reported cases of malaria.Historically, medicinal plants traditionally used for treatment of malaria have been a good source for the development of modern antimalarial drugs. Because of the long history of the disease, the use of medicinal plants for treatment of malaria is very common in Tanzania, but the efficacy of some of these medicinal plants is not well studied. **Aim:** To document ethnomedical information on plants used for treatment of malaria followed invitro evaluation against chloroquine sensitive and chloroquine resistant *Plasmodium falciparum.* **Methods:**Semi-structured questainnaires were used to collect ethnobotanical information in Six villages in Kagera region and one Village in

Lindi region. . The plant materials of selected plant species were collected, extracted by 80% ethanol and the dry extracts evaluatedfor*in vitro* antimalarial activity using the parasite lactate dehydrogenase assay. **Results:** A total of 108 medicinal plant species belonging to 41 plant families were identified and documented. These include trees (37%), herbs (34%), shrubs (20%), climbers (5%), grass (2%) and wood climbers (2%). Out of 46 crude extracts from 34 plant species screened for *in vitro* antimalarial activity, 28% inhibited chloroquine-sensitive *Plasmodium falciparum* 3D7 and 48% inhibited chloroquine-resistant *P. falciparum* Dd2 strains by ≥50%. **Conclusion:**Results from the *in vitro* antimalarial study support traditional uses of some of the 34 plant species screened, but their safety needs to be established. Among these some plants have been selectedfor further studies leading to isolation and identification of active antimalarial compounds.

422. Nondo R, Moshi MJ, Erasto P, Zofou D, Njouendou AJ, Wanji S, Titanji VP. Evaluation of the cytotoxic activity of extracts from medicinal plants used for the treatment of malaria in Kagera and Lindi regions, Tanzania. *Journal of Applied Pharmaceutical Science. 2015: 5*(04) 007-012.

A number of medicinal plants used for treatment of malaria in Tanzania have been documented, but information on their safety and efficacy is still based on traditional knowledge accumulated years and not on pre-clinical and clinical evaluation. The present study aimed to assess the cytotoxic activity of extracts of selected plant species used for treatment of malaria in Tanzania. Ethanol extracts were evaluated for cytoxicity by using MTT assay on LLC-MK2 cells and by brine shrimp lethality assay. Forty five (93.75%) out of 48 crude extracts assessed using LLC-MK2 cells were non-cytotoxic while three extracts (6.25%) were cytotoxic with CC50 <30Mg/mL (cut-off point). In the brine shrimp assay 30 (65.2%) out of 46 extracts tested were non-toxic while 16 extracts (34.8%) were toxic (LC50 <100 µg/mL). *Antiaris toxic aria* stem bark extract was the most cytotoxic to mammalian cells. This study demonstrates that, most of the antimalarial plants tested were non-toxic. These observations corroborate with traditional healers' claims that the herbal medicines used in their areas are safe. However, further studies using different toxicity models are suggested to further confirm their claims.

423. **Nordahl CW, Losif AM, Young GS, Perry LM, Dougherty R, Lee A."Sex differences in the corpus callosum in preschool-aged children with autism spectrum disorder.*" Molecular autism6.* 2015; 1(1).**

Abnormalities in the corpus callosum have been reported in individuals with autism spectrum disorder (ASD), but few studies have evaluated young children. Sex differences in callosal organization and diffusion characteristics have also not been evaluated fully in ASD. **Methods:** Structural and diffusion-weighted images were acquired in 139 preschool-aged children with ASD (112 males/27 females) and 82 typically developing (TD) controls (53 males/29 females). Longitudinal scanning at two additional annual time points was carried out in a subset of these participants. Callosal organization was evaluated using two approaches: 1) diffusion tensor imaging (DTI) tractography to define subregions based on cortical projection zones and 2) as a comparison to previous studies, midsagittal area analysis using Witelson subdivisions. Diffusion measures of callosal fibers were also evaluated. **Results:** Analyses of cortical projection zone sub regions revealed sex differences in the patterns of altered callosal organization. Relative to their sex-specific TD counterparts, both males and females with ASD had smaller regions dedicated to fibers projecting to superior frontal cortex, but patterns differed in callosalsubregions projecting to other parts of frontal cortex. While males with ASD had a smaller callosal region dedicated to the orbitofrontal cortex, females with ASD had a smaller callosal region dedicated to the anterior frontal cortex. There were also sex differences in diffusion properties of callosal fibers. While no alterations were observed in males with ASD relative to TD males, mean diffusivity (MD), axial diffusivity (AD), and radial diffusivity (RD) were all increased in females with ASD relative to TD females. Analyses of Witelson subdivisions revealed a decrease in midsagittal area of the corpus callosum in both males and females with ASD but no regional differences in specific subdivisions. Longitudinal analyses revealed no diagnostic or sex differences in the growth rate or change in diffusion measures of the corpus callosum from 3 to 5 years of age.

424. **Ntunaguzi D. Prevalence and characteristics of hearing impairment among diabetic patients attending diabetic clinic at Muhimbili National Hospital.**

(Otorhinolaryngology) ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Introduction: Hearing impairment is the chronic, often lifelong disability and most frequent sensory deficit in human populations with consequences including inability to interpret speech sounds that produces a reduced ability to communicate, delay in language achievement, economic and educational disadvantages, social isolation and stigmatization. Diabetes mellitus has been linked to increased incidence of hearing impairment due to several mechanisms suggested that affect mainly inner ear, and increased susceptibility to infections that may affect middle ear causing sensorineural and conductive hearing loss respectively. There has been no study done to show the magnitude of hearing impairment in people with diabetes mellitus and its characteristics in our country. **Objective:** To determine the prevalence and characteristics of hearing impairment among diabetic patients at attending diabetes clinic Muhimbili National Hospital Dar es Salaam Tanzania. Study design Hospital-based, descriptive cross sectional study **Methodology:** A total of 390 patients with DM attending DM clinic at MNH from June 2014 to January 2015 through convenient sampling were enrolled to participate in this study. Participants were interviewed by the structured questionnaire followed by otoscopic examination, tympanometry and pure tone audiometry. All information obtained was entered in computer and analyzed using SPSS version 20 software. Frequency and percentage was calculated to find the prevalence and pattern of hearing loss in the study population. The Chi-square test was used to determine the differences among different groups. **Results:** This study included 390 participants with DM, 55.4% were females and 44.5% were males. The prevalence of hearing impairment was 23.1%, majority being bilateral, 16.2%. The commonest type of hearing impairment was sensorineural hearing impairment with prevalence of 20%. Sixteen percent of the participants had mild hearing loss and prevalence decreased as severity of hearing impairment increased, with prevalence of moderately severe and profound hearing impairment being 1.8% and 0.5% respectively. Type 2 DM contributed 68.4% of participants and among this group 26.1% had hearing impairment. **Conclusion:** Findings corresponded with several literatures that diabetes mellitus may be a risk in developing hearing impairment. Confounding factors such as age, duration of onset of DM, glycemic

control, environmental noise exposure and use of ototoxic drugs may have contributed to difference in findings to other literatures. Further studies that will address these factors are needed.

425. **Ntunda MP. Data quality assessment for provider initiated & voluntary counseling and testing in Singida municipality, Tanzania. Master of Public Health, *Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

Background: Data quality assessment was first introduced in 2008 in Tanzania. It was introduced to inform decision makers and policy makers about the weakness and strengths of the data collected and submitted by various healths and non-health related implementing partners. Past studies have focused much about factor affecting quality of data but little is known about the extent to which data can be trusted. The aim of this study was to determine the extent to which data from the Provider Initiated and Voluntary Counseling and Testing program can be trusted to support decision-making. **Methods:** This was a cross section study conducted at Singida regional at Singida Municipality: n=1, District n=1, health facility n=7, health workers, n= 12). The study assessed five functional areas: M&E structure, functions and Capabilities, staff knowledge and understanding, data collection and reporting forms and data management processes and data integrity. Document review, observations and data verification techniques were used to verify data, and cross-verify other programmatic data and compare with the reported data. Statistical summary of verified data was automatically generated by programmed excel file to show overall % availability, completeness, ,timeliness of the report ,% data accuracy error per each health facility and overall % data quality rating for all facilities assessed. Qualitative data was grouped per each function area (by theme) being assessed and analyzed. **Results:** Overall error in reported results was 35%; overall average report availability and completeness were 65% and 90% respectively. Inadequate qualified staff to handle data quality issues and inadequate filing system at facility levels are the immediate causes of the data quality problem identified. The bottom lines of the problem are inadequate system for interaction between health facilities and higher reporting levels in the district and regional levels in the form of supportive supervision and feedback on the quality of data and reports. Inadequate understanding or commitment to the national HIV/AIDS data retention policy, guideline on how to manage VCT & PITC data,

including procedures to deal with missing or late reports and checking for double counting have also contributed to the poor data quality. **Conclusion:** This study confirmed that the Singida Municipality has data of poor quality. The study also identified several factors that affect quality of data that require the attention of health programme officials. Regular Data Quality assessment (DQA) is highly needed to improve data at each reporting level - regional, district and at the health facility levels.

426. **Nyamoita M, Ester I, Zakaria M, Wilber L, Bwire O , Ahmed H. Comparison of the Effects of Extracts from Three Vitex Plant Species on Anopheles Gambiae S.S. (Diptera: Culicidae) Larvae. *3rd MUHAS Scientific Conference, 2015.***

Method: Acetone and methanol extracts of different parts of three *Vitex* species (leaves and stem bark of *Vitex trifolia*, leaves, stem bark and root bark of *Vitex schiliebenii* and stem and root bark of *Vitex payos*) were evaluated for their potential to control *Anopheles gambiae* Giles s.s. larvae (Diptera: Culicidae). **Results:** The extracts gave different levels and rate of mortality of the larvae. Some (methanol extract of *V. trifolia* leaves, acetone extracts of stem bark and leaves of *V. schiliebenii*, acetone extract of root bark of *V. payos*) caused 100% mortality at 100 ppm in 72 hours, with those of *V. schiliebenii and V. payos* showing faster rate of mortality (LT_{50}=8 h) than that of *V. trifolia* (LT_{50}=14 h).At lower doses of these extracts ($\leq$ 50 ppm), most of the larvae failed to transform to normal pupae but gave larval-pupal intermediates between 4-14 days of exposure. Some pupated normally but the adults that emerged appeared to be weak and died within 48 hours. Extracts of the stem bark of *V. payos* showed interesting effects on the larvae. Initially, the larvae were relatively hyperactive compared to those in control treatments. Later, the ones that did not transform to larval-pupal intermediates became stretched and inactive and died and floated in clusters on the surface. **Conclusion**: These observations suggest some interesting growth-disrupting constituents in the plants, with possible application in the practical control of mosquito larvae in aquatic ecosystems.

427. **Nyamuryekung'e KK, Lahti SM, Tuominen RJ. The relative patient costs and availability of dental services, materials and equipment in public oral care facilities in Tanzania. *BMC oral health.* 2015; 15(1):1.**

Background: Patient charges and availability of dental services influence utilization of dental services. There is little available information on the cost of dental services and availability of materials and equipment in public dental facilities in Africa. This study aimed to determine the relative cost and availability of dental services, materials and equipment in public oral care facilities in Tanzania. The local factors affecting availability were also studied. **Methods**: A survey of all district and regional dental clinics in selected regions was conducted in 2014. A total of 28/30 facilities participated in the study. A structured interview was undertaken amongst practitioners and clinic managers within the facilities. Daily resources for consumption (DRC) were used for estimation of patients' relative cost. DRC are the quantified average financial resources required for an adult Tanzanian's overall consumption per day. **Results**: Tooth extractions were found to cost four times the DRC whereas restorations were 9–10 times the DRC. Studied facilities provided tooth extractions (100 %), scaling (86 %), fillings (79 %), root canal treatment (46 %) and fabrication of removable partial dentures (32 %). The ratio of tooth fillings to extractions in the facilities was 1:16. Less than 50 % of the facilities had any of the investigated dental materials consistently available throughout the year, and just three facilities had all the investigated equipment functional and in use. **Conclusions**: Dental materials and equipment availability, skills of the practitioners and the cost of services all play major roles in provision and utilization of comprehensive oral care. These factors are likely to be interlinked and should be taken into consideration when studying any of the factors individually.

428. **Nyanga AS. Factors Associated With Nuiviber of Antenatal Care Visits among Recently Delivered Women in Morogoro Municipality. Master of Science (Applied Epidemiology)** ***Dissertation 2015. Muhimbili University of Heath and Allied Sciences.***

Background: In Tanzania, large proportion of pregnant women (98%), attend at least one Antenatal Care (ANC) visit. However majority book late and attend for less than the recommended number of visits. Recently, a sharp decline has been noted in the proportion of pregnant women attending four or more antenatal clinic visits, from V 62% in 2004/2005 to 43% in 2010. Very little is known about the phenomenon. Hence this study aimed to understand the reasons behind the decline in the number of visits and identify the factors associated with four ANC visits among women who delivered within

the last two years in Morogoro Municipal. **Methods:** A cross-sectional study design was used. A two stage cluster sampling was used to select a sample of mothers who delivered within the last two years for inclusion in the study. Data was collected using a structured interview schedule. Data entry and cleaning was done using Epi Info 7 and analysis was done using Epi Info 7, SPSS (version 16) and stata version 12. Bivariate and multivariate analyses were done to identify the significant predictors contributing to four ANC visits. A11 variables that had a $p<0.25$ in Bivariate analysis were added in to the Multiple logistic regression model to control for confounding. Cluster effects were controlled for using the svy command. **Results:** A total of 582 mothers were recruited in the study with median age of 26.0 (range 15- 45) years. Over half (55%) of mothers made four or more ANC visits during pregnancy. Significant predictors of four or more ANC visits among mothers who delivered recently include: Having Secondary & above educational level AOR=2.80 (1.42-5.54) 95% C1, being employed AOR=2.93 (1.42-6.08) 95% CI, having high social economic status AOR=2.98 (1.69-5.26) 95% CI, lived in Urban part of the Municipal AOR=1.70 (1.07-2.72) 95% CI, had wished for pregnancy AOR=2.32 (1.35-4.02) 95% CI, lived within 2 and 2-5 km the ANC facility AOR=2.60 (1.21-5.58) and AOR=2.24 (1.02-4.91) 95% CI respectively. Additionally, women who booked for first ANC visit during first trimester of pregnancy AOR=6.35 (3.04-13.26) 95% CI and those reported to have been informed of having risk factor in recent pregnancy had significantly high odds of four or more ANC visits AOR=4.04 (1.97-8.28) 95% CI. Reasons behind attending less than four ANC visits were reported to be; being in good health and so no need to gc, too late to book for first ANC visit coupled with two months scheduled appointments prescribed by ANC providers. **Conclusion & Recommendation:** In this study, education level, employment status, having high social economic status, wished for pregnancy, distance to ANC facility and urban/rural residence and gestational age at booking for first ANC were important predictors of four or more ANC visits. Hence in order to increase utilization of four or more ANC visits, social economic status of women, coverage of facilities providing ANC need to be improved. Also communities should be informed on the importance of early booking for ANC.

429. **Nyato D. Perceptions of Healthy Eating and Identity-making among University Students in Tanzania: a qualitative study. *3rd MUHAS Scientific Conference, 2015*.**

Background: A change in food and eating habits is among major reasons for increasing obesity and non-communicable diseases (NCDs) in most low-income countries, including Tanzania. However, little is known on how people perceive healthy food and eating in changing food environments as well as identities emerging out of eating practices. **Aim*:*** of this study was to explore perceptions about food, eating and identity among University students and their implication to obesity and NCDs' preventive efforts. **Methods:** This study employed an ethnographic approach. Participant observations were initially conducted in major sources of food utilized by students, and later in-depth interviews (36 participants) and six focus group discussions (42 participants) were conducted. **Results**: Analyses reveals that; (a) the food environment has an important influence of what people eat; (b) knowledge of healthy food and eating does not necessarily lead to healthy eating, rather, constructions are associated with certain foods and eating. **Conclusion:** Influencing the food context especially in institutional setting such as Universities has the potential of determining eating practices. Efforts are required to demystify some false social identities associated with unhealthy foods and eating practices.

430. Nyongole O, Akoko L, Mwanga A (et al.) "Antibiotic use in urological surgeries: a six years review at Muhimbili National Hospital, Dar es salaam-Tanzania." *Pan African Medical Journal*. 2015; 22- 226.

Introduction: antimicrobial prophylaxis for urologic procedures is a major issue, as potential advantages of antibiotic administration should be carefully weighed against potential side effects, microbial resistance, and health care costs. This study aimed to review a six years trend of antibiotic use in urological surgeries at Muhimbili National Hospital (MNH) being an experience in a typical third world environment. **Methods:** this was a six years hospital based descriptive, retrospective study conducted of which all case notes of urological patients operated on in between January 2007 to December, 2012 were reviewed by using a structured data collecting tool. The data were analyzed using SPSS software. **Results:** male patients were the majority at 62% (450). The age range was 0 - 90 years, with a mean of 30 ± 22.09. Among the urological surgeries done at

MNH 86.5% (628) received prophylactic antibiotics regardless of the type surgery done. Majority 63.7% (463) received antibiotics during induction. Ceftriaxone was the commonly given antibiotic regardless of the type of urological surgery done. Most of patients (86.4%) were given antibiotics for five days regardless whether it was for prophylactic or treatment intention. **Conclusion:** antibiotic use is still a challenge at our hospital with over use of prophylactic antibiotics without obvious indications. Prolonged use of prophylactic antibiotics beyond five days was the main finding. Ceftriaxone was the most given antibiotic regardless of the urological surgery done and its level of contamination. Antibiotic stewardship needs to be addressed urgently to avoid serious drug resistances leaving alone the cost implication.

431. **Nzaji M. A study of the prevalence of infectious markers in blood donors in rural areas. The case of Kamina hospital.** ***3rd MUHAS Scientific Conference, 2015***.

Background: The transmission of infectious agents such as the human immunodeficiency virus (HIV), hepatitis B (HBV), hepatitis C (HCV) and syphilis is the greatest threat to transfusion recipient safety. The purpose of this study was to determine the sero-prevalence of infectious markers with a view to contributing to transfusion safety by selecting donors.**Methods:** A retrospective analysis of the medical records of blood donors covering the period 1 January to 31 December 2008 was conducted. The global sero-prevalence of HIV, HBV, HCV and syphilis was, respectively, 2.9%, 1.6%, 0.2% and 0.2%. A high sero-prevalence was found in the 16-25 and 46-55-year age groups, while there was a high prevalence of syphilis in the 16-25-Year age group. **Results:** The results confirm the presence of infection by hepatitis B in Kamina and provide an initial insight into the circulation of the hepatitis C virus, the HIV virus and syphilis in the blood donor population. **Conclusion:** Rigorous selection and screening procedures among blood donors are needed to ensure transfusion recipient safety.

432. Nzinza M, Kaale E, Mugoyela V, Haule A. Mapping of Medicines Storage Conditions in Warehouses and Retail outlets in Tanzania. ***3rd MUHAS Scientific Conference,*** **2015.**

Background: Good quality manufactured medicines can lose potency and become substandardbecause of poor storage conditions during transportation, in warehouses,

retail outlets and even in households during use. High temperatures above 30^{o}C and relative humidity (RH) of 75% are the most important factors, which can influence medicine degradation. **Objectives:** To assess temperature and relative humidity storage conditions in Tanzania with respect compliance to the Good Storage Practice of medicines **Methods:** Site visit to mount digital temperature and humidity data loggers that automatically collected and recorded data twice per day i.e. midday at 1210hrs and midnight at 0010hrs over a period of one year. The sites for warehouses and pharmacies were picked from six zones of Tanzania two site facilities were selected for data collection. At the end the data were downloaded into a PC. Analysis was made by calculating the Mean Kinetic Temperature (MKT) for temperature and Arithmetic Mean for Relative Humidity data.**Results:** A total of 8760 data for temperature and relative humidity were collected from August 2012 to July 2013. The overall Mean Kinetic Temperature was 25.63^{o}C and the arithmetic mean for relative humidity was 60.2%. The variation in the temperatures and relative humidity data for the country zones were observed.**Conclusion**: The storage facilities in Tanzania do comply with the Good Storage Practice of medicines according to the International Committee on Harmonization with respect to temperature and relative humidity. The data suggest Tanzania fits well in climatic zone IVb 30 °C ± 2 °C/75% RH ± 5% RH and Zone II (25 ± 2^{o}C/60 ±5%) In principle this argument holds only if the facility is fitted with air-conditioning.

433. **Nzobo BJ, Ngasala BE, Kihamia CM. "Prevalence of asymptomatic malaria infection and use of different malaria control measures among primary school children in Morogoro Municipality, Tanzania."** ***Malaria journal*** **.2015; 14(1): *1.***

Background: Malaria is a public health problem in Tanzania affecting all age groups. It is known that school childrenare the go unnoticed and thus never get treated, result in anaemia, reduced ability to concentrate and learn in school and ifage group most commonly infected with malaria parasites. Their infections are usually asymptomaticfallen sick may lead to school absenteeism. Effective malaria control requires frequent evaluation of effectiveness ofdifferent malaria interventions. **Methods**: A cross-sectional study design involving 317 out of 350 school children aged 6–13 years from five primaryschools within municipality were conducted. Multistage cluster

sampling and simple random sampling methods wereused to obtain primary school and study participants, respectively. Finger-prick blood samples were collected for*Plasmodium* parasite detection by malaria rapid diagnostic test (mRDT) and hemoglobin level assessment by Easy Touch® GHb system machine. A questionnaire was administered to assess use of insecticide-treated nets (ITNs) andAnti-malarial drugs. **Results:** The prevalence of asymptomatic malaria was 5.4 % (95 % CI 3.3–8.6 %) and anemia was 10.1 % (95 % CI7.2–13.9 %). School children aged 6–9 years were more affected by malaria than those aged 10–13 years. The proportionof ITNs used was 90.6 % (95 % CI 86.3–93.9 %) while that of artemisinin combination therapy (ACT) was 71.9 % (95 % CI 66.2–77.1 %). **Conclusion:** Findings show existence of asymptomatic malaria and walking anemia among primary school children in Morogoro municipality. The majority of school children reported use of ITNs and ACT for malaria control. These findingsprovide a rationale for using schools and school children to assess effectiveness of malaria interventions.

434. Oberthuer A, Juraeva D, Hero B. "Revised risk estimation and treatment stratification of low-and intermediate-risk neuroblastoma patients by integrating clinical and molecular prognostic markers." *Clinical Cancer Research.* 2015; 21(8): 1904-1915.

Purpose: To optimize neuroblastoma treatment stratification, we aimed at developing a novel risk estimation system by integrating gene expression–based classification and established prognostic markers. **Experimental Design:** Gene expression profiles were generated from 709 neuroblastoma specimens using customized 4 × 44 K microarrays. Classification models were built using 75 tumors with contrasting courses of disease. Validation was performed in an independent test set (n = 634) by Kaplan–Meier estimates and Cox regression analyses. **Results:** The best-performing classifier predicted patient outcome with an accuracy of 0.95 (sensitivity, 0.93; specificity, 0.97) in the validation cohort. The highest potential clinical value of this predictor was observed for current low-risk patients [5-year event-free survival (EFS), 0.84 ± 0.02 vs. 0.29 ± 0.10; 5-year overall survival (OS), 0.99 ± 0.01 vs. 0.76 ± 0.11; both P< 0.001] and intermediate-risk patients (5-year EFS, 0.88 ± 0.06 vs. 0.41 ± 0.10; 5-year OS, 1.0 vs. 0.70 ± 0.09; both P< 0.001). In multivariate Cox regression models for low-risk/intermediate-risk

patients, the classifier outperformed risk assessment of the current German trial NB2004 [EFS: hazard ratio (HR), 5.07; 95% confidence interval (CI), 3.20–8.02; OS: HR, 25.54; 95% CI, 8.40–77.66; both $P < 0.001$]. On the basis of these findings, we propose to integrate the classifier into a revised risk stratification system for low-risk/intermediate-risk patients. According to this system, we identified novel subgroups with poor outcome (5-year EFS, 0.19 ± 0.08; 5-year OS, 0.59 ± 0.1), for whom we propose intensified treatment, and with beneficial outcome (5-year EFS, 0.87 ± 0.05; 5-year OS, 1.0), who may benefit from treatment de-escalation. **Conclusions:** Combination of gene expression–based classification and established prognostic markers improves risk estimation of patients with low-risk/intermediate-risk neuroblastoma. We propose to implement our revised treatment stratification system in a prospective clinical trial.

435. Ogunbodede EO, Kida IA, Madjapa HS, Amedari M, Ehizele A, Mutave R, Okoye L. Oral Health Inequalities between Rural and Urban Populations of the African and Middle East Region. *Advances in dental research*. 2015; *27* (1):18-25.

Although there have been major improvements in oral health, with remarkable advances in the prevention and management of oral diseases, globally, inequalities persist between urban and rural communities. These inequalities exist in the distribution of oral health services, accessibility, utilization, treatment outcomes, oral health knowledge and practices, health insurance coverage, oral health–related quality of life, and prevalence of oral diseases, among others. People living in rural areas are likely to be poorer, be less health literate, have more caries, have fewer teeth, have no health insurance coverage, and have less money to spend on dental care than persons living in urban areas. Rural areas are often associated with lower education levels, which in turn have been found to be related to lower levels of health literacy and poor use of health care services. These factors have an impact on oral health care, service delivery, and research. Hence, unmet dental care remains one of the most urgent health care needs in these communities. We highlight some of the conceptual issues relating to urban-rural inequalities in oral health, especially in the African and Middle East Region (AMER). Actions to reduce oral health inequalities and ameliorate rural-urban disparity are necessary both within the health sector and the wider policy environment. Recommended actions include population-specific oral health promotion programs, measures aimed at increasing access to oral

health services in rural areas, integration of oral health into existing primary health care services, and support for research aimed at informing policy on the social determinants of health. Concerted efforts must be made by all stakeholders (governments, health care workforce, organizations, and communities) to reduce disparities and improve oral health outcomes in underserved populations.

436. **Olwit C, Musisi S, Leshabari S. "Chronic Sorrow: Lived Experiences of Caregivers of Patients Diagnosed With Schizophrenia in Butabika Mental Hospital, Kampala, Uganda."** ***Archives of psychiatric nursing.*** **2015; 29(1): 43-48**.During the experience of chronic sorrow, people feels emotional discomfort, and hopelessness. It may progress to pathological grief, depression or trigger some of the psychiatric disorders in individuals who are vulnerable. The study explored the experience of chronic sorrow among caregivers of patients diagnosed with schizophrenia. A descriptive qualitative design using focus groups and in-depth interviews was used. Most caregivers experienced chronic sorrow and identified trigger factors and coping strategies. The findings may enlighten psychiatric nurses in the care of mentally ill patients, caregivers and family members. The results may also help policy makers to prioritize mental health in the country.

437. Ombeni W, Kamuhabwa A. Assessment of lipid profile in HIV infected patients on the first line antiretroviral therapy. ***3rd MUHAS Scientific Conference,*** **2015.**

Background: The use of antiretroviral therapy has been reported to cause dyslipidemia and increased risk of cardiovascular diseases (CVD) in HIV-infected patients in industrialized countries. The effects of ARVs on lipid metabolism among sub-Saharan Africans, for whom access to antiretroviral therapy is expanding, remain largely unknown. Therefore assessement of lipid profile as a marker for CVD is important in order to identify ARVs regimen that are most likely to cause this problem among the users. **Objective**: The aim of the study was to determine the prevalence of dyslipidemia in HIV-infected patients using the first line ARVs triple regimen. The magnitude of the prevalence will help in addressing factors associated with dyslipidemia and discuss the treatment of choice for individuals with dyslipidemia on ARVs triple regimen. **Methodology:** The study was conducted at Muhimbili National Hospital (MNH) Care

and Treatment Clinics (CTC). Patients (230) that were included are those who are HIV infected, outpatients, aged >15yrs using triple therapy of ARVs for at atleast 24 weeks. Blood samples from patients were collected during their regular visits at the CTC and assayed for determination of total cholesterol (TC), triglyceride**s** (TG), high density lipoprotein (HDL) and low density lipoprotein (LDL) cholesterol. **Results:** Majority of patients (75.9%) were females. The mean age of the patients was 42 ± 9.19 years. The prevalence of hypertriglyceridemia, hypercholesterolemia, incresed LDL and low HDL were 69.9%, 46.3%, 43.9% and 34.3% respectively. **Conclusion:** There is high prevalence of dyslipidemia among HIV-infected patients using ARVs. If the association between the use of ARVs and high preverance of dyslipidemia is confirmed in larger studies, these findings may influence the initial choice of therapy for HIV infection, and routine monitoring of lipid profile among patients.

438. Ombeni W, Kamuhabwa A. RLipid Profile in HIV-Infected Patients Using First-Line Antiretroviral Drugs. *Journal of the International Association of Providers of AIDS Care (JIAPAC)*. 2015; 2325957415614642.

Objective: To determine the prevalence of dyslipidemia in HIV-infected patients using the first-line antiretroviral (ARV) drugs triple regimen. **Methods:** HIV-infected patients aged ≥15 years and attending Care and Treatment Clinic (CTC) at Muhimbili National Hospital, in Dar es Salaam, Tanzania, were recruited for the study. Blood samples from patients were collected during their regular visits at the CTC and assayed for determination of total cholesterol, triglycerides (TGs), high-density lipoprotein, low-density lipoprotein cholesterol, and CD4 counts. **Results:** The median CD4 count was 346 cells/mm^3 (2-2600). Triple therapy combinations of ARV drugs used by patients included zidovudine (ZDV)/lamivudine (3TC)/efavirenz (EFV; 42.4%), ZDV/3TC/nevirapine (NVP; 33.8%), tenofovir (TDF)/emtricitabine/EFV (19.9%), and TDF/3TC/EFV (3.9%). The overall prevalence of dyslipidemia in patients was 77.5%. There was varied prevalence of derangement of individual lipids among patients. Age, body mass index, CD4 count, sex, and duration of ARV drug use were the predictors of poor lipid profiles. **Conclusion:** The findings of this study indicate the need for routine monitoring of lipids among HIV-infected patients.

439. **Ongie G, Mathews J. "Recovery of piecewise smooth images from few Fourier samples."** ***Sampling Theory and Applications (SampTA), 2015 International Conference on*****. IEEE, 2015.**

We introduce a Prony-like method to recover a continuous domain 2-D piecewise smooth image from few of its Fourier samples. Assuming the discontinuity set of the image is localized to the zero level-set of a trigonometric polynomial, we show the Fourier transform coefficients of partial derivatives of the signal satisfy an annihilation relation. We present necessary and sufficient conditions for unique recovery of piecewise constant images using the above annihilation relation. We pose the recovery of the Fourier coefficients of the signal from the measurements as a convex matrix completion algorithm, which relies on the lifting of the Fourier data to a structured low-rank matrix; this approach jointly estimates the signal and the annihilating filter. Finally, we demonstrate our algorithm on the recovery of MRI phantoms from few low-resolution Fourier samples.

440. **Ossenkoppele R, Schonhaut DR, Baker LS."Tau, amyloid, and hypo metabolism in a patient with posterior cortical atrophy:** ***Annals of neurology.*** **2015. 77(2): 338-342**.

Determining the relative contribution of amyloid plaques and neurofibrillary tangles to brain dysfunction in Alzheimer disease is critical for therapeutic approaches, but until recently could only be assessed at autopsy. We report a patient with posterior cortical atrophy (visual variant of Alzheimer disease) who was studied using the novel tau tracer [^{18}F]AV-1451 in conjunction with [^{11}C]Pittsburgh compound B (PIB; amyloid) and [^{18}F]fluorodeoxyglucose (FDG) positron emission tomography. Whereas [^{11}C]PIB bound throughout association neocortex, [^{18}F]AV-1451 was selectively retained in posterior brain regions that were affected clinically and showed markedly reduced [^{18}F]FDG uptake. This provides preliminary in vivo evidence that tau is more closely linked to hypo metabolism and symptomatology than amyloid. Ann Neurol 2014. Among the most striking neuroimaging findings in Alzheimer disease (AD) is the dissociation between the distribution of amyloid-β (Aβ) and patterns of neurodegeneration. Across AD phenotypes, Aβ is deposited relatively symmetrically throughout the neocortex,[1-3] whereas atrophy and hypo metabolism are more focal and mirror clinical symptoms.[1, 3-

6] Based on the close association found at autopsy between neurofibrillary tangles, neuronal injury,[7] and cognitive status,[8] tau pathology could be the missing link that ties Aβ to neurodegeneration and symptomatology. The study of relationships between tau pathology and other pathogenic processes in AD has been hindered by the lack of tau-specific imaging biomarkers that could demonstrate the distribution of neurofibrillary tangles during life. The recent advent of a novel positron emission tomography (PET) tracer ([^{18}F]AV-1451, formerly called [^{18}F]T807) allows in vivo assessment of regional tau load.[9, 10] In this study, we compared patterns of [^{18}F]AV-1451, [^{11}C]Pittsburgh compound B (PIB; measure of febrile Aβ), and [^{18}F]fluorodeoxyglucose (FDG; glucose metabolism) retention in a patient with posterior cortical atrophy (PCA). PCA is a clinical–radiological syndrome generally associated with AD pathology[11] that affects occipital, parietal, and occipitotemporal cortices, resulting in progressive visuospatial and visuoperceptive deficits.[12] We hypothesized that [^{11}C]PIB would show binding throughout the neocortex, whereas [^{18}F]AV-1451 (increased) and [^{18}F]FDG (decreased) would show more restricted uptake patterns in clinically affected posterior brain regions.

441. **Osward Lk. The association between the quality of partograph use in management of labour and immediate neonatal and maternal outcome at mbeya referral hospital, Tanzania. Master of medicine (Obstetrics and Gynaecology)** ***Dissertation 2015*****.** ***Muhimbili University of health and allied sciences*****.**

Background: The partograph is an important tool designed to provide a continuous pictorial overview of labour progress and is essential to monitor and manage labour. Proper use of partograph has shown to improve both immediate maternal and perinatal outcomes. Likewise, the substandard filling of the partograph has been associated with poor management of labour which may be reflected by poor neonatal outcomes. The study aimed at assessing the quality of the partograph use in the management of labour according to the standard practice in relation to the immediate neonatal and maternal outcome. Objective of the Study The objective of the study was to assess the quality of partograph use in management of labour and its association with early neonatal outcomes for women delivering at Mbeya Referral Hospital Tanzania. **Methods:** A retrospective cross-sectional study conducted in Mbeya Referral hospital (MRH). A convenient sampling method was used and data was extracted from the files of women who delivered

at MRH by using a structured data collection tool. Data was then entered into computer using IBM-SPSS version 15.0 for analysis. **Results:** There were 1505 total deliveries during the study period with average rate of 13 deliveries per day. High proportion 944(62.7%) of delivered women had used partographs. Among deliveries where partographs were used 506(53.6%) met the inclusion criteria of the study. The mean age of all included in the study was 26.05 ±6.27 years. The timing of labour onset and admission to the hospital ranged between 2 hours and 11 hours. Moreover the time between hospital admissions and first pelvic assessment ranged from 10 minutes to 5 hours. The majority 279 (69.7%) of study participants were of age 20 to 34 years, the mean age being 25.01 ± 1.28 years. As it was noted 382(95.5%) were at term with a gestation age between 37 and 40 weeks. Moreover the study showed that neonatal outcome that had APGAR score of seven or more were 312 (77.9%), stillbirth fresh were 10(2.5%) and among those with low APGAR score, 37(9.3%) were admitted to NICU. Most of the deliveries 340(85.0%) were by spontaneous vaginal delivery. With regard to the filling of the partographs the component of FHR 285(71.2%) and descent of presenting part 204(51.0%) were filled according to the standard protocol. However on the component of maternal conditions (Bp, Temperature and PR; 325(81.2%), 323(80.8%) and 320(80.0%) respectively) the partographs were almost substandard filled. The substandard recordings of FHR were 7times more likely to cause poor apgar score in labour monitoring (AOR: 7.39, 95% CI 3.4-15.9). Other parameters were not statistically associated with poor Apgar score. **Conclusion:** In this study it was found out that partographs were used in more than two thirds of women delivering at MRH. There was high proportion of partograph use and most of them had standard recordings of parameters of labour. Substandard fetal heart rate monitoring, uterine contractions, cervical dilatation and descent of the head were significantly associated with Apgar score less than 7 at 5 minute. However the foetal heart rate was the variable found to be the true predictor of the neonatal outcomes. **Recommendation:** Based on the findings from the study, on job training to health workers on the use of partograph should be regularly done. Moreover supportive supervision is needed regularly to motivate utilization and proper filling of the partographs. More efforts are needed on improving fetal outcomes by

making sure any mother in labour to be managed using partograph. Further and most important foetal heart rate should be the key point in management of labour.

442. **Otieno J, Abihudi S, Veldman S, Nahashon M, van Andel T, de Boer HJ. Vernacular dominance in folk taxonomy: a case study of ethnospecies in medicinal plant trade in Tanzania. *Journal of ethnobiology and ethnomedicine*. 2015; 11(1):1.**

Background: Medicinal plants are traded as products with vernacular names, but these folk taxonomies do not always correspond one-to-one with scientific plant names. These local species entities can be defined as ethnospecies and can match, under-differentiate or over-differentiate as compared to scientific species. Identification of plant species in trade is further complicated by the processed state of the product, substitution and adulteration. In countries like Tanzania, an additional dimension to mapping folk taxonomies on scientific names is added by the multitude of ethnicities and languages of the plant collectors, traders and consumers. This study aims to elucidate the relations between the most common vernacular names and the ethnicity of the individual traders among the medicinal plant markets in Dar es Salaam and Tanga regions in Tanzania, with the aim of understanding the dynamics of vernacular names in plant trade. **Methods:** A total of 90 respondents were interviewed in local markets using semi-structured interviews. The ethnicity of each respondent was recorded, as well as the language of each ethnospecies mentioned during the interviews. Voucher collections and reference literature were used to match ethnospecies across languages. **Results:** At each market, the language of the majority of the vendors dominates the names for medicinal products. The dominant vendors often represent the major ethnic groups of that region. Independent of their ethnicity, vendors offer their products in the dominant language of the specific region without apparently leading to any confusion or species mismatching. **Conclusions:** Middlemen, traders and vendors adapt their folk classifications to those of the ethnic groups of the region where they conduct their trade, and to the ethnicity of their main customers. The names in the language of the traders are not forgotten, but relegated in favor of the more salient names of the dominant tribe.

443. **Outwater A, Campbell J, Mgaya E. Contextual factors of Youth Experiencing Violent Death in Dar es Salaam, Tanzania. *3rd MUHAS Scientific Conference, 2015.***

Background: Between 2000 and 2010 in Dar es Salaam region (DSM) about 3500 people died from homicide (including assault, lynching and vigilantism). Of these, about 2000 deaths occurred as a result of community violence, 87% of which were related to theft, robbery, and burglary.**Objective:** Describe contextual factors of those who experienced or were at risk for homicide death. **Methods:** The study was descriptive and cross-sectional. Mixed methods were used. This report is based primarily on indepth interviews and focus group discussion.Questions asked were: Tell me about the deceased. Or tell us about your life.Quantitative data from surveillance questionnaires and a household surveys illuminate the qualitative data. The site of most interviews was Muhimbili National Hospital (MNH) Mortuary when relatives came to pick up the bodies of the homicide deceased. Qualitative data were analyzed in NVivo 9. **Results:** Of 43 nodes, 8 are being reported here, chosen because they were among the largest describing the context in which the subjects lived. During their childhood, the respondents experienced cash poverty, illness leading to death of parents,and lack of education. They arrived at youthhood with a belief in God, family responsibilities, and desires. The situation they met was an almost complete lack of employment, amidst an economy with an active market for stolen goods. **Discussion:** The youth who were being killed by community mobs for thieving, were attempting to navigate their way to a stable adulthood. Being uneducated, unskilled, and from impoverished backgrounds they were ill-equipped to meet the challenges. The most lucrative sector accessible to them was thieving. The most common target was cell phones. This sector is sustained by the middle class who benefit by being able to buy expensive cell phones at minimal cost. The corporations also gain since phones sales increase. **Conclusion:** Youth are set on a path of petty theft by the contexts in which they live. Their dangerous acts benefit the corporate and middle classes.

444. Outwater A, Mgaya E, Msemo S, Helgesson L, Abraham A. Youth unemployment, Community Violence,Creating Opportunities in DSM, TZ: A qualitative study. *3rd MUHAS Scientific Conference, 2015.*

Background: Tanzania has been consistently shown in recent decades to have high overall crime rates. For example, Afrobarometer, a series of public opinion surveys, found that in 2012 Tanzanians reported higher rates of crime than people in all other

African countries that were surveyed. Dar es Salaam has an unusually high amount of community violence. With over half of all homicides are due to lynching and vigilantism. **Aim:** To characterize ways to design appropriate interventions to decrease homicides due to community violence. **Methodology:** In-depth interviews and a focus group discussion were used. A 12-point WHO/CDC Injury Surveillance Questionnaire was adopted and used on randomly surveyed relatives of youth killed by community violence andyouths who had directly experienced community violence.Data were transcribed and analysed using o NVivo 9 software package. **Results:** "Lack of employment" was the largest theme in terms of number of references and sources and is reported with "Business Ability". Occupational employment categories for uneducated youth in DSM are: formal employment, agriculture, petty business, day labor, stealing, begging, or leaving the country. Fisheries and forestry occupations are no longer viable. Stealing, begging and leaving the country occur when other options have failed. Suggestions for decreasing death by community violence fell into four categories, all to do with employment: employment creation, working with youth in groups, providing tools and a market, and a supportive environment for small enterprises.**Conclusions:** New occupations have emerged such as commercial motorcyclists, which are decreasing unemployment related social problems like crime, promiscuity and drug abuse. However job opportunities for uneducated Tanzanian youth are inadequate and combined with poor business ability are leading to high rates of petty theft and the resulting community violence. More productive occupations are needed, including the revivification of traditional resource based industries such as fisheries and forestry. To optimize their potential effectiveness, rigorous experimental research should be conducted, to facilitate humane, equitable, and environmentally sound scale up of youth employment opportunities.

445. Outwater AH, Mgaya E, Msemo S, Helgesson L, Abraham A. Youth unemployment, community violence, creating opportunities in Dar es Salaam, Tanzania: a qualitative study. *Tanzania Journal of Health Research*. 2015; 17(1).

Background: Tanzania has consistently shown in recent decades to have a high overall crime rate. Although its homicide rate is moderate, Dar es Salaam has an unusually high amount of community violence; more than half of all homicides were due to lynching and vigilantism. Most of these homicides were a reaction to petty theft of purses, cell phones,

and domestic meat animals. Employment is hypothesized to decrease petty theft and the resulting homicidal community violence. The objective of this research is to characterize appropriate interventions. **Methods:** In-depth interviews took place with proxy respondents of youth who had been killed through community violence. Most respondents were relatives of youth killed by community violence or youth who had directly experienced community violence. A focus group was held with at risk youth. **Results:** "Lack of employment" was the largest node in terms of number of references and sources. It is reported with "Business Ability" and "Normal Life". Occupational categories for uneducated youth in Dar es Salaam are: formal employment, agriculture, petty business, and day labour. Stealing, begging and emigration occur when other options have failed. Suggestions for decreasing death by community violence fell into three categories, all to do with employment: employment creation, working with youth in groups, and creating a supportive environment for small enterprises. **Conclusions:** Productive occupations are needed, including the revivification of traditional natural resource based industries such as fisheries and forestry. The physical and legal environment must be made conducive for "self-employed non-agricultural workers". To optimize potential effectiveness, rigorous experimental research should be conducted, to facilitate humane, equitable, and environmentally sound scale up of youth employment opportunities.

446. Pallangyo K, Paul KZ, Florian RG. "IKKβ acts as a tumor suppressor in cancer-associated fibroblasts during intestinal tumor genesis." ***The Journal of experimental medicine.*****2015*****;* 212(13): 2253-2266.**

Cancer-associated fibroblasts (CAFs) comprise one of the most important cell types in the tumor microenvironment. A proinflammatory NF-κB gene signature in CAFs has been suggested to promote tumor genesis in models of pancreatic and mammary skin cancer. Using an autochthonous model of colitis-associated cancer (CAC) and sporadic cancer, we now provide evidence for a tumor-suppressive function of IKKβ/NF-κB in CAFs. Fibroblast-restricted deletion of *Ikkβ* stimulates intestinal epithelial cell proliferation, suppresses tumor cell death, enhances accumulation of $CD4^{+}Foxp3^{+}$ regulatory T cells, and induces angiogenesis, ultimately promoting colonic tumor growth. In *Ikkβ*-deficient fibroblasts, transcription of negative regulators of TGFβ signaling,

including *Smad7* and *Smurf1*, is impaired, causing up-regulation of a TGFβ gene signature and elevated hepatocyte growth factor (HGF) secretion. Over expression of Smad7 in *Ikkβ*-deficient fibroblasts prevents HGF secretion and pharmacological inhibition of Met during the CAC model confirms that enhanced tumor promotion is dependent on HGF–Met signaling in mucosa of *Ikkβ*-mutant animals. Collectively, these results highlight an unexpected tumor suppressive function of IKKβ/NF-κB in CAFs linked to HGF release and raise potential concerns about the use of IKK inhibitors in colorectal cancer patients.

447. **Pallangyo K. The scope of the cardiorenal anemia syndrome among heart failure patients admitted at Muhimbili National Hospital. Master of Public Health, *Dissertation 2015 Muhimbili University of Health and Allied Sciences.***

Background: Cardio renal anemia syndrome (CRAS) is an evolving global epidemic which portends an extremely poor prognosis. Despite this syndrome's having a high prevalence, rehospitalization and mortality rates in the fast-growing heart failure population, its underlying path physiology remains poorly understood and therapeutic options are quite empirical. **Objective:** To determine the prevalence, mortality and rehospitalization rates, and assess the medication adherence status of heart failure patients with CRAS. **Methods:** A hospital-based, cross-sectional cohort study was conducted between March 2014 and April 2015 at Muhimbili National Hospital. A total of 463 patients with clinical diagnosis of heart failure as defined by the Framingham criteria were enrolled, interviewed, examined, investigated and followed-up. Patients were further grouped and assessed as CRAS or non-CRAS based on the presence or absence of both anemia and renal insufficiency. Clinical, laboratory and medication adherence parameters were gathered during the interviews, while rehospitalization and mortality rates were assessed at 30, 90 and 180 days after enrollment. Continuous variables were compared with the use of Student's t-test and categorical data with the use of chi-square test. To assess for predictors of rehospitalization and low medication adherence, we performed logistic regression analyses, while survival analyses were executed using a Cox proportional hazards model. All analyses were 2-sided and $p<0.05$ was used to denote significance. **Results:** The mean age of participants was 46.4 and 257 (56.5%) were women. Urban residents comprised 303 (66.6%) of study subjects, in 319 (70.1%)

the highest level of educational attainment was primary education and health insurance was possessed by 97 (21.3%) of study participants. The prevalence of CRAS was 44.4%. Hypertension was the leading etiology of heart failure (41%) and it was the accountable co morbid condition in 61% of patients with CRAS. Patients with CRAS had a three times increased likelihood of having both severe anemia (46% vs 16%) and end-stage renal disease (54% vs 18%) compared to their CRAS-free counterparts, (both $p<0.001$). Regardless of CRAS status, over two-thirds of study subjects had a low medication adherence and those with health insurance were seven times more likely to adhere to the prescribed medications compared to the uninsured ones, ($p<0.001$). CRAS patients had a 20% increased risk for rehospitalization compared to patients free from the syndrome, ($p<0.001$). Patients with CRAS had a significantly higher mortality rate (74%) compared to those free from CRAS (46%) at 6 months, ($p<0.001$). **Conclusions:** Renal insufficiency and anemia are highly prevalent among heart failure patients and the presence of CRAS is associated with very high rehospitalization and mortality rates. These findings suggest that the interactions between heart failure, renal insufficiency and anemia represent not only co morbidities but also a continuum of disease progression which rather hastens the patient's death. In view of this, timely and aggressive evaluation of renal functions and anemia in heart failure patients is therefore essential in providing a better treatment approach and prognostic assessment. Non-adherence rates are high amongst heart failure patients with consequential high mortality. Implementation of interventions to improve medication adherence in routine clinical practice is essential in improving the quality of life and reducing adverse outcomes and cost of care.

448. **Patrick G. Breast lesions among women undergoing mammography at Muhimbili and aga khan hospitals, Dar es Salaam – Tanzania. Master of MMed (Radiology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: The majority of breast lesions are benign. Some of them carry high risk of changing into malignancy. Breast screening through mammography is one of the simplest way of reducing morbidity and mortality associated with Breast cancer among women. Broad Objective: To determine breast lesions among women undergoing mammography at MNH and AKH. **Methodology:** This was a descriptive cross sectional hospital based study which was conducted in Radiology Departments at MNH and AKH Dar es Salaam

Tanzania, including women undergoing breast mammography and aged ≥40 years during the duration of study. Women who are aged < 40 years, pregnant women, women with signs or symptoms of breast cancer and women with breast implant were excluded from this study. Convenience sampling technique was used, in which selection of sample was based on most available sample. Special designed form for recording client information's and imaging findings was used for collecting data. Data analysis was done using the Statistical Package for Social Sciences (SPSS) version 20. Statistical Association was done by using cross tabulations and Chi-square test was used to compare proportions. P value of < 0.05 was considered statistically significant. **Results:** The study involved 238 women with mean age of 51.45±9.33. The 34.2% of women aged 50 to 59 years and 35.3% of women aged 70 years and above had suspicious breasts lesions. The study shows that out of 238 women 47.1% were overweight and 40.7% obese. That 33.9% of overweight women and 32% of obese women had suspicious breast lesions. Also only 8.4% of the study population had positive family history of breast cancer in which 50% of them had suspicious breast lesions. Lastly 68.1% of the study population had history of using hormonal. That 35.8% of women with history of hormonal contraceptive use had suspicious breast lesions. The P Value was 0.024 which is statistically significant. **Conclusion:** From this study we can conclude that chances of having suspicious breast lesions or breast lesions highly suggestive of malignancy are much increased in older women more common in the age group 50 years and above, being overweight and obese, having a positive family history of breast cancer and women with history of hormonal contraceptive use. **Recommendations:** Another study which will involve large sample size should be conducted throughout the country.

449. **Peter E, Tibalinda P, Ngwananogu R, Mashoto K, Kaale E. Development and validation of a stability indicating HPTLC method for ascorbic acid and its application in stability studies of Rosella formulations. *3rd MUHAS Scientific Conference, 2015.***

Background: Anaemia contributes to several health and socio-economic consequences among Tanzanian. The challenges associated with present interventions have necessitated individuals to search for alternatives. As a result, substantial numbers of Tanzanians have been using Roselle juice in an attempt to correct iron deficiency anaemia. However, the

is no standardization method in place. Therefore, as a part of standardization of rosella juice and other related products, a simple, selective, precise, and stability indicating high performance thin layer chromatographic method has been developed and later will be validated for analysis of ascorbic acid and then applied for stability studies of oral herbal formulations. **Objective**: To develop an accurate, specific, repeatable and stability-indicating HPTLC method for the determination of ascorbic acid in presence of their degradation products for assessment of stability of oral herbal formulations of *Hibiscus sabdariffa L* forms. **Methods**: We investigated the influence of different solvent polarities on the separation of ascorbic acid with its potential degradation products after stress test. A mobile phase comprising of Water:Ethanol: Acetone : Glacial Acetic Acid (3:22:5:0.2 ml) on silica gel 60 F254 HPTLC plates provided good separation of the potential degradants. with Densitometric analysis of ascorbic acid was performed at 254 nm.**Results:** The method had a promising stability indicating capacity to separate ascorbic with an R_f of 0.56. For principal peaks from its degradation products. **Conclusion:** Preliminary results show the potential application of this method. The next step we plan to optimise and validate the method.

450. **Philoteus S. Human brucellosis among people presenting with febrile illness in kiteto district. Master of Epidemiology and Laboratory Management, *Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Brucellosis, a zoonotic disease caused by bacteria of the genus Brucella remains an important public health problem. The acute, sub-acute or chronic disease is transmitted to humans mainly from domestic animals: - including goats, sheep, cattle, pigs and camels. The course of the disease may either be asymptomatic, or produce a variety of clinical manifestations, ranging from mild ones to extremely severe clinical forms. **Objective:** The main objective of this study was to determine clinical and laboratory features of human brucellosis in people with febrile illness in Kiteto District in Manyara Region. **Methodology:** A hospital based cross sectional study was conducted among people with febrile illness attending Kiteto District Hospital and other health facilties in the district between October 2014 and January 2015. Study respondents were randomly selected from a list of those who met the study case definition which was any person attending selected health facilities who is 2 years and above with acute or

insidious onset of fever. Blood samples were drawn and questionnaire containing social-demographic, clinical and risk factors information was administered to every study respondent who consented. Blood samples were screened using Rose Bengal test and confirmed using c-ELISA. Data was entered, cleaned and analysed using Epi-info software version 3.5.1.Univariate, bivariate and multivariate logistic regression analysis was done to identify the risk factor. **Results:** A total of 380 respondents were enrolled during study period, the median age was 31 years. Joint or muscle pain (OR=3.3, 95% CI=1.1-10.1), general body malaise (OR=0.3, 95% CI=0.07-0.8) and sleeping disturbance (OR=5.4, 95% CI=1.9-15.3) were significantly associated with brucellosis. Leucopenia had significant statistical association with brucellosis (OR=12.8, 95% CI=2.7-60.5). Parcentage of febrile patients with low platelet count (thrombocytopenia) who tested positive for brucellosis was 17.6%, this was statistically significant (OR=0.1, 95% CI=0.02-0.6), High erythrocyte sedimentation rate was significantly associated with brucellosis (OR=15.2, 95% CI=4.5-53.4), Occupation (Pastoralist) (OR=3.3, 95% CI=1.0-10.3), consumption of unpasteurized milk (OR=0.2, 95%=0.1-0.96) and consumption of fresh blood (OR=8.8, 95% CI=2.2-34.9) were the only risk factors that were significantly associated with brucellosis. Conclusion: This study has scrutinized clinical features in febrile patients in Kiteto district. Sign and symptoms of brucellosis are non -specific however in this study it was found that a febrile patients with general body malaise, joint or muscle pain and sleeping disturbance had the greater chances of being a brucellosis positive than other febrile patients with other signs and symptoms. Hematological results had shown association between low white blood cell count (leucopenia), low platelet count (thrombocytopenia) and raised ESR with brucellosis. Febrile patients who are pastoralists were more likely to be positive for brucellosis. Consumption of unpasteurized milk and fresh blood were the risk factors which were found to be highly associated with brucellosis infection in this study.

451. **Pinheiro HT, Mazzei E, Moura, et al. "Fish biodiversity of the Vitória-Trindade Seamount Chain, southwestern Atlantic: *an updated database." PloS one.* 2015; 10(3): e0118180.**

Despite a strong increase in research on seamounts and oceanic islands ecology and biogeography, many basic aspects of their biodiversity are still unknown. In the

southwestern Atlantic, the Vitória-Trindade Seamount Chain (VTC) extends ca. 1,200 km offshore the Brazilian continental shelf, from the Victoria seamount to the oceanic islands of Trindade and Martin Vaz. For a long time, most of the biological information available regarded its islands. Our study presents and analyzes an extensive database on the VTC fish biodiversity, built on data compiled from literature and recent scientific expeditions that assessed both shallow to mesophotic environments. A total of 273 species were recorded, 211 of which occur on seamounts and 173 at the islands. New records for seamounts or islands include 191 reef fish species and 64 depth range extensions. The structure of fish assemblages was similar between islands and seamounts, not differing in species geographic distribution, trophic composition, or spawning strategies. Main differences were related to endemism, higher at the islands, and to the number of endangered species, higher at the seamounts. Since unregulated fishing activities are common in the region, and mining activities are expected to drastically increase in the near future (carbonates on seamount summits and metals on slopes), this unique biodiversity needs urgent attention and management.

452. Piwowar-Manning E, Fogel JM, Richardson P, Wolf S, Clarke W, Marzinke MA, Fiamma A, Donnell D, Kulich M, Mbwambo JK, Richter L. Performance of the fourth-generation Bio-Rad GS HIV Combo Ag/Ab enzyme immunoassay for diagnosis of HIV infection in Southern Africa. *Journal of Clinical Virology*. 2015; 62:75-9.

Background: Fourth-generation HIV assays detect both antigen and antibody, facilitating detection of acute/early HIV infection. The Bio-Rad GS HIV Combo Ag/Ab assay (Bio-Rad Combo) is an enzyme immunoassay that simultaneously detects HIV p24 antigen and antibodies to HIV-1 and HIV-2 in serum or plasma. **Objective**: To evaluate the performance of the Bio-Rad Combo assay for detection of HIV infection in adults from Southern Africa. **Study design:** Samples were obtained from adults in Soweto and Vulindlela, South Africa and Dar es Salaam, Tanzania (300 HIV-positive samples; 300 HIV-negative samples; 12 samples from individuals previously classified as having acute/early HIV infection). The samples were tested with the Bio-Rad Combo assay. Additional testing was performed to characterize the 12 acute/early samples. **Results:** All 300 HIV-positive samples were reactive using the Bio-Rad Combo assay; false positive

test results were obtained for 10 (3.3%) of the HIV-negative samples (sensitivity: 100%, 95% confidence interval [CI]: 98.8–100%); specificity: 96.7%, 95% CI: 94.0–98.4%). The assay detected 10 of the 12 infections classified as acute/early. The two infections that were not detected had viral loads < 400 copies/mL; one of those samples contained antiretroviral drugs consistent with antiretroviral therapy. **Conclusions:** The Bio-Rad Combo assay correctly classified the majority of study specimens. The specificity reported here may be higher than that seen in other settings, since HIV-negative samples were pre-screened using a different fourth-generation test. The assay also had high sensitivity for detection of acute/early infection. False-negative test results may be obtained in individuals who are virally suppressed.

453. **PK WA, PD Study Group. Artemether-lumefantrine treatment of uncomplicated Plasmodium falciparum malaria: a systematic review and meta-analysis of day 7 lumefantrine concentrations and therapeutic response using individual patient data.** ***BMC medicine*****. 2015; 13(1):227.**

Background: Achieving adequate ant malarial drug exposure is essential for curing malaria. Day 7 blood or plasma lumefantrine concentrations provide a simple measure of drug exposure that correlates well with artemether-lumefantrine efficacy. However, the 'therapeutic' day 7 lumefantrine concentration threshold needs to be defined better, particularly for important patient and parasite sub-populations. **Methods:** The Worldwide Ant malarial Resistance Network (WWARN) conducted a large pooled analysis of individual pharmacokinetic-pharmacodynamic data from patients treated with artemether-lumefantrine for uncomplicated Plasmodium falciparum malaria, to define therapeutic day 7 lumefantrine concentrations and identify patient factors that substantially alter these concentrations. A systematic review of PubMed, Embase, Google Scholar, and ClinicalTrials.gov and conference proceedings identified all relevant studies. Risk of bias in individual studies was evaluated based on study design, methodology and missing data. **Results:** Of 31 studies identified through a systematic review, 26 studies were shared with WWARN and 21 studies with 2,787 patients were included. Recrudescence was associated with low day 7 lumefantrine concentrations (HR 1.59 (95 % CI 1.36 to 1.85) per halving of day 7 concentrations) and high baseline parasitemia (HR 1.87 (95 % CI 1.22 to 2.87) per 10-fold increase). Adjusted for mg/kg dose, day 7

concentrations were lowest in very young children (<3 years), among whom underweight-for-age children had 23 % (95 % CI −1 to 41 %) lower concentrations than adequately nourished children of the same age and 53 % (95 % CI 37 to 65 %) lower concentrations than adults. Day 7 lumefantrine concentrations were 44 % (95 % CI 38 to 49 %) lower following unsupervised treatment. The highest risk of recrudescence was observed in areas of emerging artemisinin resistance and very low transmission intensity. For all other populations studied, day 7 concentrations ≥200 ng/ml were associated with >98 % cure rates (if parasitemia <135,000/μL). **Conclusions**: Current artemether-lumefantrine dosing recommendations achieve day 7 lumefantrine concentrations ≥200 ng/ml and high cure rates in most uncomplicated malaria patients. Three groups are at increased risk of treatment failure: very young children (particularly those underweight-for-age); patients with high parasitemias; and patients in very low transmission intensity areas with emerging parasite resistance. In these groups, adherence and treatment response should be monitored closely. Higher, more frequent, or prolonged dosage regimens should now be evaluated in very young children, particularly if malnourished, and in patients with hyperparasitemia.

454. **Powell K, Walker RW, Rogathe J, Gray WK, Hunter E, Newton CR, Burton K. Cognition and behavior in a prevalent cohort of children with epilepsy in rural northern Tanzania: A three-year follow-up study. *Epilepsy & Behavior*. 2015; 51:117-23.**

Objectives: Eighty-five percent of the 33 million children with epilepsy (CWE) worldwide live in low- and middle-income countries (LMICs). There is limited research into epilepsy-related comorbidities in LMICs, and there are no studies of the long-term progression of behavioral and intellectual difficulties in childhood epilepsy in sub-Saharan Africa. We aimed to assess behavior and cognition at three-year follow-up in CWE in rural Tanzania. **Methods:** In 2010, a cross-sectional study identified 112 CWE 6 to 14 years of age and 113 age- and sex-matched controls in the Hai district of northern Tanzania. From March to June 2013, cases and controls (now 10 to 18 years of age) were followed up. At baseline, behavior was assessed using the Rutter A Questionnaire and cognition using the Good enough–Harris Drawing Test. Details of current seizure frequency and antiepileptic drug (AED) use among CWE were collected. **Results**: At

follow-up, cases had significantly more behavioral difficulties compared with controls (48% of 108 cases versus 14% of 103 controls ($p < 0.001$)). Additionally, 69% of the cases and 16% of the controls had cognitive impairment ($p < 0.001$). In CWE with decreased seizure frequency from baseline to follow-up, behavior had improved significantly. At follow-up, there was no significant difference in behavior between CWE with decreased seizure frequency and those with good seizure control throughout. **Significance:** Behavioral difficulties and cognitive impairment are common among CWE in this population. Improved access to AED treatment and subsequent improved seizure control may reduce the frequency of behavioral difficulties seen in this population.

455. **Puymirat E, Nelson T, Tabassome S. "Patient education after acute myocardial infarction: cardiologists should adapt their message–French registry of acute ST-elevation or non-ST-elevation myocardial infarction 2010 registry."** ***Journal of Cardiovascular Medicine.*** **2015; 16(11): 761-767.**

Aims: A shorter time delay between onset of symptoms and first call for medical attention would be expected in patients with a history of ischemic heart disease (IHD). We aimed to determine whether time to first call for an ST-elevation myocardial infarction (STEMI) differed between patients with or without history of coronary artery disease from the French registry of acute ST-elevation or non-ST-elevation myocardial infarction (FAST-MI) 2010 registry. **Methods:** FAST-MI 2010 is a nationwide French registry that included 4169 patients with acute myocardial infarction (AMI, 2193 STEMI) at the end of 2010 in 213 centers. Factors correlated with time to first call were assessed, with a specific emphasis on previous history of IHD (IHD+; n = 402), compared with patients without history of IHD (IHD−; n=1791). **Results:** Time from onset to first call was 222±420 min (median time 68 min) in IHD+ patients versus 240±4423 min (median time 75 min) in IHD− patients (P=0.28). In multivariate analysis, only a few factors were significantly related to a shorter time from onset to first call (≤75min); time of onset during the day (7:00 a.m. to 11:00 p.m.), upper socioeconomic class, anterior MI, cardiac arrest as the initial symptom, whereas history of IHD was not associated with a shorter time delay (odds ratio 0.86; 95% confidence interval 0.70–1.05). Similar results were found between patients with previous AMI and IHD− patients. **Conclusion:** Patients with a history of IHD do not call earlier than IHD-naïve patients when they are confronted

with symptoms of AMI. Cardiologists should spend more time educating their coronary patients to recognize symptoms of AMI.

456. **Rahma H. Radiological patterns of lower extremity fractures among patients attending Muhimbili orthopedic institute. Master of MMed (Radiology)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Lower extremity injuries are a common cause of permanent disability and impairment, resulting mainly from road traffic accidents. These injuries result into long hospitalization and high utilization rates of inpatients and outpatients health and rehabilitation services at any given time. **Objective:** This study was aimed at describing the radiological patterns of lower extremity fractures among pedestrian and non pedestrian patients, presenting at Muhimbili Orthopaedic Institute (MOI) Muhimbili, Dar-es-Salaam. Methodology: A hospital based descriptive cross sectional study, involving 200 patients with lower extremity fractures at MOI emergency department. A structured questionnaire was used to collect demographic data and the extracted information from x-ray perfomed. This data was analysed using Stata version 12. Mean, median, mode and standard deviation were calculated. Bivariate analysis was then conducted using Chi-square test to determine the degree of association between each pair of variables, at a significance level of 5%. **Results:** Of the 200 patients who participated in this study, 82.5% were males and 17.5% were females. They were aged 33.7 years on average. Majority of them (64%) were injured being non-pedestrians and 36% as pedestrians. In respect to fracture patterns, the most prevalent was Communited fracture (37.5%), followed by Oblique fracture (25.5%), Simple Transverse fracture (20.5%), Segmental fracture (9.5%) where as the least prevalent was Spiral fracture which accounts for (8%). These fracture patterns were similar between men and women (P>0.05), across age groups (P>0.05) and between non–pedestrians and pedestrians (P>0.05). The fracture patterns were not affected by sex (P=0.560) and the age of an individual (P>0.05). **Conclusion:** The lower extremity fracture patterns were similar between pedestrians and non–pedestrian, males and females, and across age groups of the patients. The most prevalent fracture pattern is communited fracture and the least is the Spiral fracture. Femur is the most fractured bone compared to other lower extremity bones. **Recommendation:** Staff should be well trained and skilled in managing these

fractures. Need for specialized training to all MOI emergency staff so that they can correctly and timely manage lower extremity injuries. From this study finding, with comparison to other studies, there are some areas of differences. There is therefore need for further research to shed more light on reasons for these differences.

457. **Rama E, Mangi E, Lupeja R, Moshiro C. Factor Affecting Multi-sectoral Collaboration Response to Rift Valley Fever Outbreak in Kongwa District. *3rd MUHAS Scientific Conference, 2015.***

Background: Rift Valley Fever (RVF) is a viral haemorrhagic, viral infection, with fatal effects to animals and human beings as well resulting to significant mortality and economic loss. A strategic approach for effective RVF outbreaks preparedness and response is through combined participatory approach in Multisectoral collaboration. **Aim:** The aim to examine factors affecting multi-sectoral collaboration response to Rift Valley Fever outbreak among the District and Ward officials in Kongwa District. **Methods**: A qualitative study that applied phenomenological approach was conducted among the representatives in the Disaster Management Unit in the Prime Minister's Office, the Emergency Preparedness and Response section in the Ministry of Health and Social Welfare and the Ministry of Livestock and Fisheries Development, the Dodoma region, district, ward and farmers' association representatives in Kongwa district in April, 2013. A total of 15 representatives were purposively recruited in the study, 13 male and 2 female key informants. An interview guide was used to collect data. Purposive sampling was used to select representatives with technical knowhow, knowledge and experience in relation with Rift Valley Fever outbreak. Interview transcripts were subjected to thematic content analysis. **Results:** This study found several factors facilitating weak and uncoordinated multisectoral collaboration to include lack of emergency funds, inadequate resources, lack of awareness of health and veterinary departments on the existing plans and guidelines on Rift Valley Fever. As a result of there is poor preparedness and response infrastructure in Tanzania. **Conclusion**: The zoonotic nature of RVF calls for a multisectoral collaboration in disease surveillance, detection, reporting and timely response.

458. **Ramadan F, Asiah H. "perilaku konsumen pelayanan kesehatan berhubungan dengan pemanfaatan antenatal care di puskesmas binamu kota." 2015.**

Pemanfaatan pelayanan kesehatan adalah interaksi antara konsumen dengan provider (penyedia pelayanan). Seperti halnya dalam pelayanan Antenatal Care. Pelayanan Antenatal yang lengkap dilihat dari hasil cakupan K4 ibu hamil.Penelitian ini bertujuan untuk mengetahui hubungan keluarga, kelas sosial, motivasi, persepsi, sikap dengan pemanfaatan Antenatal di puskesmas binamu kota kabupaten Jeneponto. Jenis penelitian yang digunakan adalah penelitian observasional dengan rancangan cross sectional study. Sampel penelitian ditentukan dengan teknik accidental sampling dengan jumlah responden 50 orang dari ibu hamil trimester III yang memeriksakan kehamilannya di Puskesmas Binamu Kota. Analisis data menggunakan uji statistik yaitu chi-square dan untuk mengetahui keeratan hubungannya maka dilakukan uji koefisien phi. Hasil penelitian ini menunjukkan bahwa variabel dukungan keluarga (p=0,000 dan φ= 0.500), kelas sosial (p=0.015 dan φ= 0.345) motivasi (p=0.018 dan φ= 0.333), persepsi (p=0.033 dan φ= 0.302), dan sikap (p=0.002 dan φ= 0.445) erhubungan dengan pemanfaatan Antenatal Care. Kesimpulan dari penelitian ini bahwa ada hubungan keluarga, kelas sosial, motivasi, persepsi, dan sikap dengan pemanfaatan Antenatal Care di Puskesmas Binamu Kota Kabupaten Jeneponto. Penelitian ini menyarankan kepada pihak puskesmas agar lebih mengintensifkan penyuluhan dan konseling mengenai pentingnya Antenatal Care secara lengkap serta meningkatkan kualitas pelayanan kesehatan.

459. **Ramadhani SON, Denis Z, Mainen JM, Paul E, Samuel W, Moses NN, Vincent PKT, Abdul WK, Pax JM. "Ethnobotanical survey and in vitro antiplasmodial activity of medicinal plants used to treat malaria in Kagera and Lindi regions, Tanzania." *Journal of Medicinal Plants Research 9.6,* 2015: 179-192.**

Tanzania has over 12,000 plant species, some of which are endemic and have potential to yield useful medicines. This study seeks to document such plants used as traditional medicines for treatment of malaria in Kagera region of northwestern Tanzania and Lindi region in south eastern Tanzania. The study also reports on the antiplasmodial activity against chloroquine-resistant *Plasmodium falciparum* (Dd2) strain of some of the documented plants using the parasite lactate dehydrogenase method. A total of 108 plant

species, among which the families Compositae (14; 12.96%), Fabaceae (12; 11.11%), Euphorbiaceous (8; 7.41%), Melastomataceae (6; 5.56%) and Myrtaceae (4; 3.70%) were documented. Sixteen (16; 44.4%) of 36 extracts from 31 plant species that were tested inhibited malaria parasites growth by more than 50%. *Bersema abyssinica* stem bark extract was the most active with 86.67% inhibition rate followed by *Bridelia micrantha* stem bark extract with 71.87% inhibition rate. These results confirm the potential for plants used in traditional medicine to yield active antimalarial compounds. Further *in vitro* and *in vivo* screening supported by bioassay-guided isolation of active compounds from plants showing good safety margin is suggested.

460. Richard A, Mghamba J,Aboud S. Seroprevalence of Hepatitis B and C Virus Infections and Associated Risk Factors among People Living With HIV and AIDS Attending Care and Treatment Centre in Morogoro, Tanzania. *3rd MUHAS Scientific Conference, 2015*

.Background: HIV changes the natural history of HBV and HCV resulting into increased mortality and morbidity in HIV co-infected individuals worldwide. In Tanzania the prevalence of HBV and HCV in HIV-infected patients ranges from 1.2 to 17.3% and 13.8 to 18.1% respectively. **Aims:** To determine the seroprevalence and risks factors associated with HBV and HCV infections among people living with HIV and AIDS attending care and treatment centre in Morogoro Region, Tanzania. **Methods:** This was a cross sectional study conducted at a Care and Treatment Centre in Morogoro, Tanzania, from November 2011 to February 2012. Questionnaire was administered to obtain socio-demographic characteristics and to assess risks factors. Blood samples were collected and tested for HBV (HBsAg, anti-HBcAb IgM and HBeAg) and anti-HCV antibodies. Bivariate logistic regression analysis was used to determine the association between the independent and dependent variables. **Results:** A total of 428 HIV-infected adults were recruited, of which female were 349 (81.5%). The overall mean age was 38.9 ± (SD) 9.7 years. The overall seroprevalence of HBsAg, HBcIgM, HBeAg, anti-HCV antibodies and HBsAg/HCV antibodies were 4.9% (21/428), 0%, 0.7% (3/428), 4.0% (17/428) and 0.002% (1/428), respectively. History of imprisonment (adjusted OR 6.87, 95% CI 1.46-32.61) and unsafe injection (adjusted OR 14.34, 95% CI 4.38-48.95) were independent predictors of HBsAg and tattooing (adjusted OR 7.13 95% CI 1.44-35.35), history of

liver disease (adjusted OR 6, 95% CI 1.32-27.96) and history of imprisonment (adjusted OR 0.16, CI 0.0596-0.4509) were independent predictors of HCV. **Conclusions:** Lower seroprevalence of HBV (4.9%) and HCV (4.0%) infection was found among HIV patients attending care and treatment centre in Morogoro. History of unsafe injection and imprisonment for HBV infection and tattooing and history of liver disease for HCV infection were found to be significant predictors, respectively.

461. **Riemann R. The Clinical Characteristics Of Tuberculosis And Associated Co-Morbidities Among The Elderly Compared To Adults In Dar Es Salaam, Tanzania Medicine (Internal Medicine)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Due to a number of factors life expectancy and the proportion of men and women of 60 years and above continue to increase both globally and locally. Old age has been shown to be associated with impaired immunity (immunoscenensce), increased risk of co-morbidities such as diabetes mellitus, impaired renal function, poverty and malnutrition; factors which increase the risk of developing clinical Tuberculosis. Studies from Europe and America suggest that TB in the elderly often presents with atypical symptoms or atypical radiological findings or both. Furthermore the presenting clinical features may be confused with age related illnesses and hence delay TB diagnosis and treatment with consequent increased morbidity and mortality. The aim of this study was to describe the key characteristics of tuberculosis among the elderly and the associated co-morbidities and compare them to those of adults. **Broad Objective:** To describe and compare the clinical characteristics of tuberculosis and associated factors among patients aged 18-59(adults) and those aged 60 years or more (elderly) attending TB clinics in the city of Dar es salaam. **Specific Objectives:** (1) To describe and compare clinical characteristics of TB in the elderly and adults aged 18-59 years. (2) To determine and compare the sputum microscopy yield for Mycobacterium tuberculosis in elderly and adults with pulmonary TB (PTB). (3) To compare the chest radiological findings in elderly and adults aged 18-59 years with TB (4) to document the treatment outcomes at the end of intensive phase in the two groups (5) to describe and compare the co morbidities associated with TB in the two groups. **Methodology:** This was a hospital based prospective cohort study among TB patients aged ≥18 years attending TB clinics in

three district hospitals of Dar es Salaam city. All the TB suspects attending the clinics between 2nd August 2014 to 31st December 2014 were investigated as per the NTLP diagnostic algorithm. Patients who consented were asked to provide blood samples for full blood count, random blood sugar, serum creatinine and HIV serology. At the end of two month of intensive therapy study subjects underwent repeat examinations of sputum for AFB, FBC, serum creatinine, CXR and weight. Adverse effects to drugs and mortality were also compared between the two groups. The estimated sample size for this study was 250 patients with TB. **Results:** We recruited 150 (59.3%) and 103 (40.7%) adults and elderly patients respectively. The mean age (SD) for the adults was 35.57 (± 10.3) and it ranged from 18 – 59 years. The mean age (SD) for the elderly was 67.17 (± 6.43) and it ranged from 60 – 90 years. Clinically adults were more likely to present with hemoptysis compared to elderly (23.4% Vs 8.3% p=0.006) while elderly were more likely to present with general body malaise compared to adults. (41.3% Vs 75.7%, p<0.001). Adults had a higher yield for Mycobacterium tuberculosis compared to elderly. (p<0.001). Radiologically a higher involvement of lower zone was observed in a larger proportion of elderly as compared to adults (42.3% Vs 18.5% p<0.001) while adults were more likely to form cavities (50.4% Vs 22.7% p<0.001).Elderly patients were more likely to present with poor treatment outcomes as compared to adults. Co morbidities such as obesity, hypertension, diabetes mellitus and renal insufficiency were observed more among elderly as compared to adults. The mortality rate was higher among elderly as compared to adults. (17.5% Vs 6.7 %, p<0.01) **Conclusion:** HIV infection was found to be an important risk factor for TB to both adults and elderly patients in Dar es Salaam. Atypical clinical and/or radiological findings, co-morbidities were significantly more common among the elderly compared to adults.

462. **Ringo J, (et al.) "Heterocyst for yield and its components in sorghum ('Sorghum bicolor'L.** ***Moench hybrids in dry lands and sub-humid environments of East Africa***.": **2015; 9.**

A study was conducted in 2011 and 2012 growing seasons to determine levels of heterosis and identify parents for use in sorghum hybrid production in East Africa. A total of 36 pairs of male sterile lines and 42 restorers were obtained from ICRISAT-Nairobi and used for generating 121 experimental hybrids in a line tester mating design.

The hybrids were then evaluated at Kiboko, Ukiriguru and Miwaleni locations in an alpha lattice design with three replications. Each genotype was grown in a 4 m long row at spacing of 60 cm 50 cm. Phenotypic data were collected as per IPGRI, (1993) descriptors for sorghum on five randomly selected plants. There were significant differences among locations, crosses and male parents for all the characters studied. Female lines were highly significant for all traits except days to 50% flowering (DAF). Desired heterobeltiosis for DAF varied from -5.23 to -14% indicating of early maturing material that can escape terminal drought in rainfed agriculture, characteristic of East African cultivation system. Lowest (desired) heterobeltiosis for plant height was -53.61% with crosses ICSA15xTegemeo and ATX623xKARI-MTAMA1most promising for this trait. Grain yield showed average heterosis and heterobeltiosis of up to 81.90% and 77.18% respectively both expressed in ICSA11xS35. The parents KARI MTAMA1, IESV91104DL, S35, BTX623, ICSB12 and ICSB11 produced hybrids that yielded high with medium height and maturity therefore could be included to develop hybrid sorghum for East Africa region.

463. **Rio B, Chevret S, Vigouroux S, (et al.) "Decreased nonrelapse mortality after unrelated cord blood transplantation for acute myeloid leukemia using reduced-intensity conditioning: a prospective phase II multicenter trial.*"Biology of Blood and Marrow Transplantation. 2015.21(3): 445-453.***

A prospective phase II multicenter trial was performed with the aim to obtain less than 25% norelapse mortality (NRM) after unrelated cord blood transplantation (UCBT) for adults with acute myeloid leukemia (AML) using a reduced-intensity conditioning regimen (RIC) consisting of total body irradiation (2***2015*** Gy), cyclophosphamide (50 mg/kg), and fludarabine (200 mg/m^2). From 2007 to 2009, 79 UCBT r***2015***ecipients were enrolled. Patients who underwent transplantation in first complete remission (CR1) (n = 48) had a higher frequency of unfavorable cytogenetics and secondary AML and required more induction courses of chemotherapy to achieve CR1 compared with the others. The median infused total nucleated cells (TNC) was 3.4×10^7/kg, 60% received double UCBT, 77% were HLA mismatched (4/6), and 40% had major ABO incompatibility. Cumulative incidence of neutrophil recovery at day 60 was 87% and the cumulative incidence of 100-day acute graft-versus-host disease (II to IV) was 50%. At 2 years, the

cumulative incidence of NRM and relapse was 20% and 46%, respectively. In multivariate analysis, Major ABO incompatibility (P = .001) and TNC (<3.4 × 10^7/kg; P = .001) were associated with increased NRM, and use of 2 or more induction courses to obtain CR1 was associated with increased relapse incidence (P = .04). Leukemia-free survival (LFS) at 2 years was 35%, and the only factor associated with decreased LFS was secondary AML (P = .04). In conclusion, despite the decreased NRM observed, other RIC regimens with higher myelosuppression should be evaluated to decrease relapse in high-risk AML.

464. **Roberton T, Applegate J, Mosha I, (et al.) "Initial experiences and innovations in supervising community health workers for maternal, newborn, and child health in Morogoro region, Tanzania."** ***HumanResource Health.*** **2015; 13(1): 19.**

Background: Supervision is meant to improve the performance and motivation of community health workers (CHWs). However, most evidence on supervision relates to facility health workers. The Integrated Maternal, Newborn, and Child Health (MNCH) Program in Morogoro region, Tanzania, implemented a CHW pilot with acascade supervision model where facility health workers were trained in supportive supervision for volunteer CHWs, supported by regional and district staff, and with village leaders to further support CHWs. We examine the initialexperiences of CHWs, their supervisors, and village leaders to understand the strengths and challenges of such asupervision model for CHWs. **Methods:** Quantitative and qualitative data were collected concurrently from CHWs, supervisors, and village leaders.A survey was administered to 228 (96%) of the CHWs in the Integrated MNCH Program and semi-structured interviewswere conducted with 15 CHWs, 8 supervisors, and 15 village leaders purposefully sampled to represent different actor perspectives from health centre catchment villages in Morogoro region. Descriptive statistics analysed the frequency and content of CHW supervision, while thematic content analysis explored CHW, supervisor, and village leaderexperiences with CHW supervision. **Results:** CHWs meet with their facility-based supervisors an average of 1.2 times per month. CHWs value supervisionand appreciate the sense of legitimacy that arises when supervisors visit them in their village. Village leaders and districtstaff are engaged and committed to supporting CHWs. Despite these successes, facility-based supervisors visit CHWs intheir village an average of only once every 2.8 months, CHWs

and supervisors still see supervision primarily as anopportunity to check reports, and meetings with district staff are infrequent and not well scheduled. **Conclusions:** Supervision of CHWs could be strengthened by streamlining supervision protocols to focus less on report checking and more on problem solving and skills development. Facility health workers, while important fortechnical oversight, may not be the best mentors for certain tasks such as community relationship-building. We suggestfurther exploring CHW supervision innovations, such as an enhanced role for community actors, who may be moresuitable to support CHWs engaged primarily in health promotion than scarce and over-worked facility health workers.

465. **Romore I, Ali AM, Semali I, Mshinda H, Tanner M, Abdulla S. Assessment of parental perception of malaria vaccine in Tanzania.** ***Malaria journal*****. 2015; 14(1):1**.

Background: Clinical trials of the RTS, S malaria vaccine have completed Phase III and the vaccine is on track for registration. Before making decisions about implementation, it is essential to prepare the ground for introducing the vaccine by assessing awareness and willingness to use malaria vaccines and to provide policy makers with evidence-based information on the best strategies to engage communities to manage the introduction of malaria vaccine in Tanzania. **Methods:** In November 2011, as part of a large cross-sectional study of all 23 regions of Tanzania (mainland Tanzania and Zanzibar) was conducted during Tanzanian Integrated Measles Campaign (IMC) survey. In this study, the variables of interests were awareness and willingness to use a malaria vaccine. The main outcome measure was willingness to use a malaria vaccine. Logistic regression was used to examine the influence of predictive factors. **Results**: A representative sample of 5502 (out of 6210) women, aged 18 years or older and with children under 11 months old, was selected to participate, using random sampling probability. Awareness of the forthcoming malaria vaccine, 11.8 % of participants in mainland Tanzania responded affirmatively, compared to 3.4 % in Zanzibar (p value <0.0001). 94.5 % of all respondents were willing to vaccinate their children against malaria, with a slight difference between mainland Tanzania (94.3 %) and Zanzibar (96.8 %) (p value = 0.0167). **Conclusions**: Although mothers had low awareness and high willingness to use malaria vaccine, still availability of malaria vaccine RTS,S will compliment other existing malaria interventions and it will be implemented through the Immunization,

Vaccines and Biologicals (IVB) programme (formerly EPI). The information generated from this study can aid policy makers in planning and setting priorities for introducing and implementing the malaria vaccine.

466. **Ross MW, Nyoni J, Larsson M, Mbwambo J, Agardh A, Kashiha J, McCurdy SA. Health care in a homophobic climate: the SPEND model for providing sexual health services to men who have sex with men where their health and human rights are compromised. *Global health action*. 2015; 8.**

We present a model for developing health services for men who have sex with men (MSM) in sub-Saharan Africa and other places where MSM are heavily stigmatized and marginalized. The processes of the SPEND model include Safe treatment for sexually transmissible infections (STIs) and HIV; Pharmacy sites for treatment of STIs in countries where pharmacies and drug stores are the source of medical advice and treatment; Education in sexual health issues for health professionals to reduce discrimination against MSM patients; Navigation for patients who have HIV and are rejected or discriminated against for treatment; and Discrimination reduction through educating potential leaders in tertiary education in issues of human sexuality. Supporting empirical evidence from qualitative and quantitative studies is summarized, and barriers to implementation are discussed. Health care for MSM is one of the casualties of anti-homosexual social and legal climates. There is no amnesty for MSM in health care settings, where the stigma and discrimination that they face in the rest of society is replicated. Such conditions, however, make it necessary to consider ways of providing access to health care for MSM, especially where rates of HIV and STIs in MSM populations are high, and stigma and discrimination encourages high proportions of MSM to marry. This in itself enhances the status of MSM as an important bridge population for STIs including HIV. Where anti-homosexual laws encourage, or are believed to encourage, the reporting of MSM to authorities, health care may be seen as an agent of authority rather than an agency for care.

467. **Rugarabamu S. Spectrum of Bacteria Causing Oral and Maxillofacial infections and Their Antibiotic Susceptibility among Patients attending Muhimbili National**

Hospital Dar-Es-Salaam, Tanzania. Master of Science (Medical Microbiology and Immunology) ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****.**

Background: Oral facial infection is common around the world. It is the commonest problem that contributes to morbidity and mortality in oral surgery department's increase in infection due antimicrobial resistance pathogen could be among the factors. In Tanzania bacteriological studies of etiological agents of or-facial infections are very limited, and very few have investigated anaerobes. **Objective:** To determine the spectrum of bacterial agents involved in oral and maxillofacial infections in patients attending Muhimbili National Hospital, Dar-es-salaam, Tanzania and their sensitivity to antibiotics. **Methodology:** This was a hospital based descriptive cross-sectional study that was conducted among patients with infection in the Department of Oral and Maxillofacial Surgery of the Muhimbili National Hospital in Dar es Salaam. Structured questionnaires were used to collect social demographic and Clinical History from patient. Examination of lesions and diagnosis was done prior to specimen collection. Specimens were cultured using optimal aerobic and anaerobic microbiological techniques. Further identification was performed by standard microbiological methods and antimicrobial susceptibility pattern of isolated bacteria was performed according to the guidelines of Clinical and Laboratory Standards Institute (CLSI) **Results:** A total of 158 bacteria strains were isolated from specimens obtained from 70 patients which was an average of 2.3 isolates per patient. A complex mix of strict anaerobes and facultative anaerobes accounted for 87% of all infections. Most frequently isolated aerobes were Streptococcus spp and Staphylococcus spp. Predominant anaerobes were Prevotella spp and Peptostreptococcus spp. The majority of isolated aerobic organism seemed to be sensitive to Penicillin (98%), Gentamicin (75%), and Ciprofloxacin (l00%). Metronidazole sensitivity was found to be variable for the isolated anaerobes **Conclusion:** Obligate anaerobes were isolated from patient with Oral facial infections at Muhimbili National Hospital. To treat Oro facial infections with antibiotic, antimicrobial spectrum against aerobes and anaerobes may be required. More studies are required to study organisms causing oral and maxillofacial infections in detail. This will help Dentists and Oral Surgeons to appropriately and effectively treat their patients with good clinical outcome and therefore reduce the morbidity and mortality of the disease.

468. **Ruggajo P, Skrunes R, (et al.) "Familial Factors, Low Birth Weight, and Development of ESRD: A Nationwide Registry Study."** ***American Journal of Kidney Diseases*** **2015.**

Background Previous studies have demonstrated that low birth weight (LBW) is associated with higher risk for end-stage renal disease (ESRD). However, both LBW and ESRD cluster in families. The present study investigates whether familial factors explain the association between LBW and ESRD.**Study Design**Retrospective registry-based cohort study.Setting & Participants Since 1967, the Medical Birth Registry of Norway has recorded medical data for all births in the country. Sibling data are available through the Norwegian Population Registry. Since 1980, all patients with ESRD in Norway have been registered in the Norwegian Renal Registry. Individuals registered in the Medical Birth Registry with at least 1 registered sibling were included.Predicto LBW in the participant and/or LBW in at least 1 sibling.**Outcom** ESRD. **Results:** Of 1,852,080 included individuals, 527 developed ESRD. Compared with individuals without LBW and with no siblings with LBW, individuals without LBW but with a sibling with LBW had an HR for ESRD of 1.20 (95% CI, 0.91-1.59), individuals with LBW but no siblings with LBW had an HR of 1.59 (95% CI, 1.18-2.14), and individuals with LBW and a sibling with LBW had an HR of 1.78 (95% CI, 1.26-2.53). Similar results were observed for individuals who were small for gestational age (SGA). Separate analyses for the association of age 18 to 42 years and no congenital ESRD showed stronger associations for SGA than for LBW, and the associations were not statistically significant for age 18 to 42 years for LBW. Limitations Follow-up only until 42 years of age. **Conclusions:** LBW and SGA are associated with higher risk for ESRD during the first 40 years of life, and the associations were not explained by familial factors. Our results support the hypothesis that impaired intrauterine nephron development may be a causal risk factor for progressive kidney disease.

469. **Ruhago GM, Ngalesoni FN, Robberstad B, Norheim OF. Cost-effectiveness of live oral attenuated human rotavirus vaccine in Tanzania. Cost Effectiveness and Resource Allocation. 2015; 13(1):1**.

Background: Globally, diarrhoea is the second leading cause of morbidity and mortality, responsible for the annual loss of about 10% of the total global childhood disease burden. In Tanzania, Rotavirus infection is the major cause of severe diarrhoea and diarrhoeal mortality in children under five years. Immunisation can reduce the burden, and Tanzania added rotavirus vaccine to its national immunisation programme in January 2013. This study explores the cost effectiveness of introducing rotavirus vaccine within the Tanzania Expanded Programme on Immunisation (EPI). **Methods:** We quantified all health system implementation costs, including programme costs, to calculate the cost effectiveness of adding rotavirus immunisation to EPI and the existing provision of diarrhoea treatment (oral rehydration salts and intravenous fluids) to children. We used ingredients and step down costing methods. Cost and coverage data were collected in 2012 at one urban and one rural district hospital and a health centre in Tanzania. We used Disability Adjusted Life Years (DALYs) as the outcome measure and estimated incremental costs and health outcomes using a Markov transition model with weekly cycles up to a five-year time horizon. **Results**: The average unit cost per vaccine dose at 93% coverage is US$ 8.4, with marked difference between the urban facility US$ 5.2; and the rural facility US$ 9.8. RV1 vaccine added to current diarrhoea treatment is highly cost effective compared to diarrhoea treatment given alone, with incremental cost effectiveness ratio of US$ 112 per DALY averted, varying from US$ 80–218 in sensitivity analysis. The intervention approaches a 100% probability of being cost effective at a much lower level of willingness-to-pay than the US$609 per capita Tanzania gross domestic product (GDP). **Conclusions**: The combination of rotavirus immunisation with diarrhoea treatment is likely to be cost effective when willingness to pay for health is higher than USD 112 per DALY. Universal coverage of the vaccine will accelerate progress towards achievement of the child health Millennium Development Goals.

470. Runyoro DK, Joseph CC, Ngassapa OD, "Ant candida Agents from a Tanzanian Plant Albizia anthelmintica." *Journal of the Chinese Chemical Society*. 2015; 62(8): 669-674.

Candidiasis is one of the most frequent opportunistic infections in individuals with severe immunosuppression and further development of resistance against the available antifungal drugs has created an alarming situation. This requires intensive drug discovery

to develop new, more effective, affordable and accessible antifungal agents possessing novel modes of action. Albizia anthelmintica, which is ethno medically used to treat vaginal candidiasis in the Morogoro and coastal regions of Tanzania, on activity guided fractionation and subsequent purification resulted in the isolation and characterization of an isomer of methyl cyclitol (1) and six echinocystic acid saponins (2–7). Saponins 6 and 7 are new and being reported for the first time from nature. Among all the isolated compounds, 3-O-[α-L-arabinopyranosyl (1 2)][α-L-arabinopyranosyl (1 6)]-2-acetamido-2-deoxy-β-D-glucopyranosyl echinocystic acid (4), 3-O-[α-L-arabinopyranosyl (1 2)] [α-L-arabinopyranosyl (1 6)]-2-amino-2-deoxy-β-D-glucopyranosyl echinocystic acid (6) and 3-O-[β-D-glucopyranosyl (1 3)] [α-L-arabinopyranosyl (1 2)] [α-L-arabinopyranosyl (1 6)]-2-amino-2-deoxy-β-D-glucopyranosyl echinocystic acid (7) and their combinations were active against the various strains of C. albicans with MICs ranging from 12.5 to 125 μg/ml.

471. **Rwehumbiza EC. Health care system factors influencing uptake of antiretroviral treatment services among HIV infected children in Arusha Region. Master of Public Health *Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Children are among key populations affected by HIV/AIDS worldwide. HIV/AIDS accounts for high morbidity and mortality among children especially in low and middle income countries including Tanzania. Use of antiretroviral therapy has shown to reduce mortality and progress of HIV among HIV infected children. Despite the fact that ART services have been expanded to lower level health facilities in Tanzania, ART services uptake among HIV positive children is still low. Little is known on the health care system factors affecting uptake of ART services among children. **Study Aim:** The aim of this study was to investigate health care system factors influencing uptake of ART services among HIV positive children in Arusha region, Tanzania. **Methods:** A cross sectional facility-based study involving 47 care and treatment sites was conducted in Arusha region. A structured questionnaire was used to collect information from each site by interviewing the in-charge of care and treatment clinic. The outcome variable was uptake of ART services by HIV+ children. Bivariate analysis was done to investigate the association between the dependent and independent variables. **Results:** The proportion of HIV positive children out of all clients who were current on ART services in October to

December 2013 in Arusha region was 7.1%, which is below the national target (9%). However, for 22 out of 47 sites (46.8%) the uptake for HIV+ children was greater than 9%. Good ART uptake services was greater among sites with adequate stock of pediatric ARV formulations, sites with at least three service providers working at CTC and sites visited quarterly by health management teams. **Conclusion:** Uptake of ART services for HIV+ children in Arusha region is quite low. Efforts are needed to focus on improving health care system at the facility level in order to increase access of ART services to children. There is a need to expand care and treatment service to more sites which are not providing ART services.

472. **Rweyemamu D. Spectrum of Skin Diseases and drug prescribing Pattern Among Out Patients in Public and Faith Based Hospitals in Three Regions of Tanzania. Master of Science (Pharmaceutical Management)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Skin diseases account for a higher proportion of outpatient attendances especially for children fewer than five years in Tanzania. In some studies, skin diseases have shown to be among the top ten diseases of hospital admissions. Inappropriate prescription and use of medicines is an extremely serious global problem that waste resources, may be harmful to patients and lead to development of antimicrobial resistance. Prescribing patterns studies and data of spectrum of skin diseases are used in interventions to improve use of medicines, informed decision making and health planning. **Objectives:** The study aimed at investigating the spectrum of skin diseasesanddrug prescribing pattern among out patients in public and faith based hospitals in three regions of Tanzania. **Methodology:** This was both a cross sectional retrospective and prospective study conducted between January to December 2014.The Spectrum of Skin diseases and the data for prescribingindicatorswere collected retrospectively from medical records of 5 health facilities using WHO-Simple Prescribing Indicator Forms. The Prospective study involved use of structured questionnaires to collect data from 43 OPD prescribers on availability and utilization of Standard Treatment Guidelines (STG).Study sample of 1020 prescribing encounters were obtained through random sampling from 4520 medical records of skin diseases. Data was analyzed using the 'Statistical Package for Social Sciences' (SPSS) program version 20.0. **Results:**

A total of 2151 drugs were prescribed for the 1020 prescriptions obtained fromthe health facilities, giving a range of 1.9 – 2.5 average number of drugs per encounter with amean of 2.11 (SD 0.64). Medicines prescribed by generic name constituted 75% (SD 7.2%) of the total prescribed medicines. Antibiotics and injections were encountered by38 % and 5.0%respectively. Eighty one to ninety percent (81%-90%) of the prescribed medicines with a mean of 85% (SD 3.7%) were from EML. About 72% (31/43) ofprescribers reported to consultSTGs, only 65 %(28/43) of them had copies of STGs in their working rooms. The study established that 68.7 % of the patients were treated according to STGs in both public and faith based health facilities. The skin diseases observed included noninfectious dermatomes (63.8%) and infectiousdermatoses (36.2%) of which included dermatitis variants 40%, pyoderma 19% and superficial mycosis12%. **Conclusions and Recommendations:** Overall the prescribing practices were agreeable with WHO recommendations for 4 indicators which were average number of drugs per prescription, prescribing from EML, percent of encounter with injections and key drugs in stocks. However, 3 indicators were not in accordance with the WHO guidelines and they included percent encounter with antibiotics, generic prescribing and percent availability of STGs among prescribers. From this study it is recommended that rational prescribing of antibiotics and generics should be provided to both public and faith based prescribers. Also an intervention is necessary to enhance accessibility of STG by improving their distribution to various health facilities. All this will in turn improve management of the prevailing skin diseases.

473. **Rwezaula SS, Magesa PM, Mgaya J. (at el). Newborn screening for hemoglobinopathies at Muhimbili National Hospital, Dar es Salaam–Tanzania. *East African Journal of Public Health*, 2015; 12(1): 948-955.**

Background: Newborn screening (NBS) for hemoglobinopathies is important for the early detection and effective management of affected children.**Objectives:** To determine the frequency of occurrence, types of, and factors associated with abnormal hemoglobin in newborns at Muhimbili National Hospital (MNH), Dar es Salaam. **Methods:** A hospital-based, descriptive cross-sectional design was used to recruit newborns at Muhimbili National Hospital in 2009. Blood specimens were analyzed by High Performance Liquid Chromatography and alkaline Hb electrophoresis to determine the

type and proportion of hemoglobin variants. Complete blood counts including red cell indices were done by automated hematology analyzer. **Results:** Out of 2,053 samples analyzed, the prevalence of hemoglobinopathies was 18.2% (n=374). The percentages of children with defined hemoglobinopathies included 12.6% (n=258) with sickle cell trait (Hb FAS); 0.9% (n=19) as sickle cell carrier or Hb S Beta+ -thalassemia (Hb FSA); 0.54% (n=11) had SCA or Hb S Beta0-thalassemia (Hb FS); one Hb FA-D variant and 5.3% (n=109) with possibly α-thalassemia (Hb Bart's). The frequency of occurrence of abnormal haemoglobins were highest among participants whose parental origin were Costal Regions, 35.6% (n=133) and Lake Zone, 10.2% (n=38). Participants from the Northern Region of Tanzania had the lowest frequency of occurrence, 6.7% (n=25) ($X2 = 37.7$, $p < 0.01$). Having abnormal haemoglobins increased the likelihood of newborns being born at low gestational age (23.8%) by 1.5 fold as compared to newborns (16.3%) born without abnormal haemoglobins ($X2=11.7$, $p=0.001$).**Conclusions:** The frequency of occurrence of abnormal hemoglobin is high and fulfills the World Health Organization (WHO) criteria of a disorder of public health significance. Therefore, newborn screening programme is highly recommended in Tanzania. The ethnic origin of the parents and the gestational age were significantly associated with occurrence of abnormal haemoglobins.

474. Sabir A, Islam A, Shafiq M. "Novel polymer matrix composite membrane doped with fumed silica particles for reverse osmosis desalination." *Desalination.* 2015. 368: 159-170.

Novel polymer matrix composite membranes of cellulose acetate (CA)/polyethylene glycol (PEG) doped with 10–30 wt.% fumed silica particles (FSP) were synthesized. The dissolution casting methodology was used to construct reverse osmosis (RO) membrane which accounts the explicit application for desalination process. The interactions between polymer chains and doped FSP were confirmed by Fourier transform infrared spectroscopy (FTIR). Differential scanning calorimetry thermograms support the physical nature of polymer matrix composite membranes (PMCMs) and an improved glass transition temperature (T_G) from 78.3 to 92.4 °C was observed. The thermal stability of the composite membranes significantly enhanced with the addition of FSP. The typical morphology of PMCM was observed using scanning electron microscopy (SEM) and atomic force microscopy (AFM). The 30 wt. % of FSP filled PMCM showed substantial

improvement in tensile strength (8.2 MPa) and Young's modulus (854.0 MPa) as compared to the PMCM without FSP. The percentage water content (WC) of the membrane doped with 30 wt.% FSP absorbed more water as compared to the other membranes. It was also noticed that the FSP doped PMCM enhanced the desalination process which was monitored in terms of permeation flux ($L/m^2 \cdot h$) and salt rejection (%). The optimum performance of desalination process was shown by 30 wt.% FSP doped PMCM; the permeation flux was 0.66 $L/m^2 \cdot h$ and salt rejection was 98.4% for the initial feed of 0.35 wt.% NaCl aqueous solution at 25 °C and operating pressure of 4.0 bar (osmotic pressure 2.9 bar).

475. **Sabir A, Shafiq M, Islam A. "Fabrication of tethered carbon nanotubes in cellulose acetate/polyethylene glycol-400 composite membranes for reverse osmosis."** ***Carbohydrate polymers.*** **2015. 132: 589-597.**

In this study pristine multi-walled carbon nanotubes (MWCNTs) were surface engineered (SE) in strong acidic medium by oxidation purification method to form SE-MWCNT. Five different amount of SE-MWCNT ranging from 0.1 to 0.5 wt% were thoroughly and uniformly dispersed in cellulose acetate/polyethylene glycol (CA/PEG400) polymer matrix during synthesis of membrane by dissolution casting method. The structural analysis, surface morphology and roughness was carried out by Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM), and atomic force microscopy (AFM), respectively, which showed that the dispersed SE-MWCNT was substantially tethered in CA/PEG400 polymer matrix membrane. The thermo gravimetric analysis (TGA) of membranes also suggested some improvement in thermal properties with the addition of SE-MWCNT. Finally, the performance of these membranes was assessed for suitability in drinking water treatment. The permeation flux and salt rejection were determined by using indigenously fabricated reverse osmosis pilot plant with 1000 ppm NaCl feed solution. The results showed that the tethered SE-MWCNT/CA/PEG400 polymer matrix membrane, with strong SE-MWCNTs/polymer matrix interaction, improved the salt rejection performance of the membrane with the salt rejection of 99.8% for the highest content of SE-MWCNT.

476. **Saddiqa A, Hussein BI, Nawaz TM. "Synthesis and Crystal Structures of 2-Amino-4-methyl-5, 6, 7, 8-tetrahydroquinoline-3-carbonitrile and 2-Amino-4-phenyl-4a, 5, 6, 7-tetrahydro-4H-naphthalene-1, 3, 3-tricarbonitrile."*Asian Journal of Chemistry. 2015. 27(3): 969.***

2-Amino-4-methyl-5, 6, 7, 8-tetrahydroquinoline-3-carbonitrile with m.f. C11H13N3 was synthesized using simple multicomponent reaction Ofcyclohexanone, malononitrile and acetaldehyde. However, in an effort to synthesize another analogue of **I** using benzaldehyde in Placement of acetaldehyde, 2-amino-4-phenyl-4a, 5, 6, 7-tetrahydro-4*H*-naphthalene-1, 3,3-tricarbonitrile (**II**) [C19H16N4] was formed. The CompoundsI and **II** were crystallized in triclinic and orthorhombic crystal system with space group *P-1* and *Pbca*. The two carbon atoms In tetrahydroquinoline-3-carbonitrile were disordered over two positions which were refined using EADP constraint. The dihedral angle Puckering parameters of different planes were measured. It is found that both of these molecules are involved in classical N-H…N type Hydrogen bonding interaction which forms dimers through the formation of different ring motifs *i.e*. R22 (8) and R22(12). In quinoline-3-Carbonitrile N-H…N interactions forms sheets along *ab*plane while in naphthalene-1,3,3-tricarbonitrile infinite two dimensional network Stabilize the crystal structure along (0 0 1) plane.

477. **Said A. Prevalence and Pregnancy Outcome of Domestic Violence in Pregnancy among Antenatal Clinic Attendees in Songea. *3rd MUHAS Scientific Conference,* 2015.**

Background: Violence against pregnant women has recently been acknowledged as one of threats to women's health. Domestic violence (DV) is defined as physical, sexual, or psychological and or emotional violence, or threats of violence that are inflicted on a woman by a relative. All forms of violence in pregnancy have been shown to have a negative impact on pregnancy outcome. **Objective:** To document the prevalence and pregnancy outcome of domestic violence inflicted on pregnant women in Peramiho Songea. **Methodology:** This was an analytic cross sectional study done at Peramiho hospital antenatal clinic. Eligible pregnant women were selected using a systematic sampling and were interviewed using a standard structured questionnaire. **Results:** A

total of 1305 pregnant women were interviewed **.**The prevalence of DV before pregnancy was found to be 36.6% while it was 64.7% and 42.8% in the index and previous pregnancy respectively. Emotional abuse prevalence was 85.5%, while 51.3% and 58.8% were exposed to physical and sexual abuse respectively. The intimate partner was the most common perpetrator of violence. Abused women were more likely to be 40 years and above, have no education, peasants, have partners with no education and divorced or separated. Other risk factors were partners consumption of alcohol, cigarette and drugs and having unplanned pregnancy. Women abused during pregnancy were at risk of low birth weight and spontaneous abortion. **Conclusion:** Domestic violence against women during pregnancy is high. Most abused women are verbally abused but physical and sexual abuses are also high. Violence during pregnancy is associated with adverse pregnancy outcome.

478. **Said J. The Burden And Clinical Characteristics Of Patients Admitted At Muhimbili National Hospital Medical Wards With Unknown HIV Infection. Master of Medicine (Internal Medicine)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences*****.**

Background; HIV/AIDS is a global health threat and great public health challenge. SSA is the most affected area estimated to have 70% of PLWHA (1). Most hospital inpatients do not know their HIV status, unless the hospital has routine counseling and HIV testing of inpatients (2). Under current screening policies, missed opportunities for HIV screening remain unacceptably high (3). This argues in emphasis on PITC for all patients attending health facilities. **Objective:** To determine the proportion and clinical characteristics of patients admitted in Muhimbili National Hospital (MNH) Medical wards with unknown HIV Infection. **Methods:** Patients newly admitted in the medical wards with unknown HIV status were recruited in this hospital based cross sectional study. All patients were interviewed, examined and screened for HV infection, CD4 T lymphocytes count values were determine for HIV infected patients. All patients were followed up to determine in hospital mortality and duration of stay. **Results;** Of the 610 patients admitted during the study period, 78 (13.4%) had confirmed HIV disease, and the status was unknown in 520 (85.2%). Of the 520 patients with unknown HIV status 505 (97.1%) consented to be tested when invited by care provider and 30 (5.9%) of these

tested positive. Therefore, the overall HIV proportion among medical admissions was 108/583 (18.5%). Twenty (66.7%) of newly diagnosed patients with HIV infection were in WHO stage IV disease. The median CD4 T lymphocytes count was 247cells/mm3. Fever, malaise, weight loss, oral candidacies, skin manifestations, generalized lymphadenopathy, mucous membrane pallor, and altered mental status were the commonest clinical features. On adjusted analysis for confounders; fever (AOR=4), oral candidacies (AOR=44), generalized lymphadenopathy (AOR=10) and altered mental status (AOR=14) were associated with HIV infection. Tuberculosis was diagnosed in 16.7% of patients with newly diagnosed HIV infection. The missed opportunities for earlier HIV test and diagnosis of patients attending health facilities were found to be high. **Conclusion;** Over 85% of patients admitted into MNH medical wards had unknown HIV status, but most (97%) of these patients consented to being HIV tested when invited by care provider. A significant proportion of those newly diagnosed had advanced HIV disease and required ART treatment. In hospital mortality was unacceptably high and could have been reduced by early diagnosis, initiation of prophylaxis and ART. There is an urgent need to determine impediments to a full scale implementation of the national policy on PITC in health facilities aimed at early detection of HIV infection for improved care of those affected and prevention of unintentional HIV transmission.

479. **Salim N, Knopp S, Lweno O, Abdul U, Mohamed A, Schindler T, Rothen J, Masimba J, Kwaba D, Mohammed AS, Althaus F. Distribution and risk factors for Plasmodium and helminth co-infections: a cross-sectional survey among children in Bagamoyo district, coastal region of Tanzania. *PLoS Negl Trop Dis.* 2015; 9(4):e0003660.**

Background: Plasmodium and soil transmitted helminth infections (STH) are a major public health problem, particularly among children. There are conflicting findings on potential association between these two parasites. This study investigated the Plasmodium and helminth co-infections among children aged 2 months to 9 years living in Bagamoyo district, coastal region of Tanzania. **Methods:** A community-based cross-sectional survey was conducted among 1033 children. Stool, urine and blood samples were examined using a broad set of quality controlled diagnostic methods for common

STH (Ascaris lumbricoides, hookworm, Strongyloides stercoralis, Enterobius vermicularis, Trichuris trichura), schistosoma species and Wuchereria bancrofti. Blood slides and malaria rapid diagnostic tests (mRDTs) were utilized for Plasmodium diagnosis. **Results:** Out of 992 children analyzed, the prevalence of Plasmodium infection was 13% (130/992), helminth 28.5% (283/992); 5% (50/992) had co-infection with Plasmodium and helminth. The prevalence rate of Plasmodium, specific STH and co-infections increased significantly with age ($p < 0.001$), with older children mostly affected except for S. stercoralis monoinfection and co-infections. Spatial variations of co-infection prevalence were observed between and within villages. There was a trend for STH infections to be associated with Plasmodium infection [OR adjusted for age group 1.4, 95% CI (1.0–2.1)], which was more marked for S. stercoralis (OR = 2.2, 95% CI (1.1–4.3). Age and not schooling were risk factors for Plasmodium and STH co-infection. **Conclusion:** The findings suggest that STH and Plasmodium infections tend to occur in the same children, with increasing prevalence of co-infection with age. This calls for an integrated approach such as using mass chemotherapy with dual effect (e.g., ivermectin) coupled with improved housing, sanitation and hygiene for the control of both parasitic infections.

480. Sandström E, Bolmsjö I, Janzon E. Attitudes to and Experiences of Physical Activity among Migrant Women from Former Yugoslavia.

Background: Many risk factors for heart disease can be reduced by lifestyle modifications Such as physical activity, but the attitude to and the knowledge about the beneficial effect of physical Activity varies among the population. Migrant women are reported to have a higher BMI and to be less physically active than the Swedish-born women. In order to motivate them to participate in physical Activity it is necessary to understand that they are not a homogenous group, and thus their knowledge about, needs for, and attitude to physical activity have to be examined. The **Aim** of the study was to explore structural and individual factors working either as barriers against or as motivation for A change towards higher levels of physical activity and a healthy lifestyle. Furthermore, the aim was To investigate if the migration had changed the women's level of physical activity and what would be Required to increase it. Method: Seven women from Bosnia living in Malmö, Sweden, were interviewed by means of a semi-structured

interview guide. The data was analyzed using Bernard's Content analysis method. **Results**: The findings were presented in two categories, namely, "barriers against physical activity" and "motivational factors for physical activity". With regard to the Category "barriers against physical activity", the move to Sweden had led to losses and shifts in Lifestyles for the women. The greatest lifestyle changes were reported among women who had moved from rural areas in Bosnia to urban areas in Sweden. They found it troublesome to reach the same Activity level in Sweden and expressed a greater need to do so. Earlier negative experiences or no Experiences at all, of performing physical activity, as well as the winter climate, were seen as Obstacles to being active. All the women prioritized family, work, school, and club activities above Physical activity. With respect to the category "motivational factors for physical activity", it was found that physical activity could help improve their mental balance, and the women also considered the possibility of losing weight. **Conclusion**: The study showed that although these migrant women had difficulties finding appropriate and realistic physical activities, and prioritized family activities, they desired to be more physically active, even if the climate was seen as a hindrance. They also reported that physical activity could be a means to achieve better mental health as well as weight loss. Politicians ought to allocate funding, and public health worker to focus more on and enable this high Risk group of immigrant women to become more physical active. They should also be informed about their increased risk of myocardial infarction. This, to stimulate increased physical activity among them and in ought to be in co-working with their own immigrant organization.

481. **Sanga SSL. Work related stress and associated factors among public primary school teachers in Mvomero District, Morogoro, Tanzania. Master Clinical Psychology *Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Occupational stress (job stress) has become one of the most serious health issues in the modern world. Numerous studies have explored determinants of teacher stress and they found administrative, social demographic, environmental and psychological factors have significant association with teachers' work related stress. Multinational studies have also shown that teachers in low income countries experienced more severe symptoms of stress compared to teachers in high income countries. While a number of national reports have highlighted that work related stress among teachers

affects their working performance, there is no retrievable study on the magnitude of work stress problem among public primary school teachers in Tanzania. **Objective:** The main objective of the study was to determine the level of work related stress experienced by public primary school teachers and its association with psychosocial factors. **Methods:** This was a cross sectional study design; employing multistage random sampling method to obtain a sample of 200 participants. The study used a standard demographic questionnaire and one standardized scale for measuring stress as well as two standardized scales for measuring the psychological factors which were self esteem and self efficacy. SPSS version 20 was used to analyze the data. Univariate, bivariate and multivariate analysis was done. Chi-square test was used to determine the significance of observed findings. Ethical clearance for the conduct of this study was sought from MUHAS research and publication committee. **Results:** A total of 200 participants were included in the study (70 %, n=140) female and 30 %, n=60) male teachers. The identified prevalence of teacher's stress in this study was 45%which was consistent with studies that have been conducted in other countries. Majority of teachers reported low level of stress (55%, n= 110), followed by moderate level of stress (32%, n=64) and high level of stress (13%, n= 26).Majority of teachers experienced moderate level of self-esteem (68%, n= 136), followed by low level of self-self-esteem (21%, n= 42) and high level of self-esteem (11%, n=22). A large proportion of teaches reported levels of self-efficacy to be moderate level (71%, n=142) followed by high level of self-efficacy (18%, n= 36).Few reported low level of self-efficacy (11%, n=22) . High level of self efficacy was associated with low levels of stress, but high self esteem appeared to be related to more stress. **Conclusion and Recommendation:** The findings of the current study suggest that work related stress among Tanzanian public primary school teachers is a concern that needs to be addressed. Therefore it is recommended that efforts should be directed at identifying and ameliorating the risk factors contributing to work related stress among public primary school teachers.

482. Sangeda R, Bukini D, Urio F, Kivuyo M, Tarimo B, Mayige M, Mwakale P, Nkya S, Ishengoma D, Misinzo G, and Makani J. Formation of Tanzania Genome Network: Leveraging Technology for Genomics and Bioinformatics in Tanzania. *3rd MUHAS Scientific Conference, 2015.*

Introduction: In the past few decades, genomics research has led to ground breaking discoveries in translational medicine for diseases like cancer and diabetes. Genomics has been central to our understanding of infectious diseases such as malaria, HIV and tuberculosis among others. The aim is to highlights the progress of collaborative research by Tanzania Genome network (TGN) whose intention is to leverage technology in solving mankind problems. **Methods:** TGN is a multi-disciplinary initiative to bring together researchers and practitioners from different fields of science including health, agriculture, physical, social and mathematical sciences.**Results:** Recognizing the potential of genomics, firstly, Tanzanian scientists have come together to establish the Tanzania Genome Network (TGN). Scientists are based at universities; Muhimbili University of health and Allied Sciences (MUHAS), University of Dar es Salaam (UDSM), Sokoine University of Agriculture (SUA), Hubert Kairuki Memorial University (HKMU), Nelson Mandela African Institute of Science and Technology (NM-AIST), Kilimanjaro Christian Medical Centre (KCMC), African Academy of public Health (AAPH/MDH)/Havard School of Public Health. Involved research institutions; Ifakara health institute (IHI), National institute for Medical research (NIMR), African Malaria network Trust (AMANET) and other stakeholders in government are Ministry of Health and Social Welfare (MoH & SW) and National Health Laboratory Quality Assurance and Training centre.Secondly, Tanzania is part of several genomic networks in health (malaria, HIV, TB, Sickle Cell Disease, Diabetes Mellitus and other NCDs), agriculture (Cassava) and livestock. Efforts are made to strengthen bioinformatics, which is critical to handle BIG DATA in genomics. Tanzania is part of H3ABioNet, an NIH-funded Pan African Bioinformatics network comprising of 32 Bioinformatics research groups distributed amongst 15 African countries and 2 partner Institutions based in the USA. Since, 2012 Tanzania, with its research centres, has benefited through this network initiatives, the latest being support for Bioinformatics degree curriculum development.**Conclusion:**Through sharing of resources and proper use of BIG DATA, Tanzania is utilizing science and technology to solve local problems in health, agriculture and other fields. This will have an impact beyond the field of science and bring about commercial success and economic development of the citizens.

483. Sangeda R, Mosha F, Aboud S, Lyamuya E, Wijngaerden E, Vandamme A. Pharmacy refill adherence outperforms self-reported methods in predicting HIV therapy outcome in resource-limited settings. *3rd MUHAS Scientific Conference,* 2015.

Background: Widespread antiretroviral scale-up programs are being implemented in resource-limited settings (RLS). Optimal adherence to antiretroviral therapy is unarguably a critical factor to prevent HIV drug resistance (HIVDR) epidemics. **Objectives**: To investigate which adherence measurement method has better performance to predict virological failure. **Method**: A follow-up from a single-centre prospective cohort study enrolling HIV-infected adult patients attending an HIV/AIDS Care and Treatment Centre (CTC) that provides ART at Amana district Hospital in Dar es Salaam, Tanzania in 2010. A total of 220 patients were followed up for one year. Pharmacy refill, self-report (visual analog scale (VAS) and the Swiss HIV Cohort study-adherence questionnaire (SHCS-AQ)), pill count and appointment keeping were investigated. **Results:** At the end of the study patients' adherence and viral load measurements at baseline and one year were available for 162 (73.6%). Of these patients 34% and 10.5% had detectable viral load and immunological failure, respectively at one year after recruitment. In univariate analysis, pharmacy refill adherence emerged as the best method predicting virological failure. Moreover, Cox regression analysis predicted that patients classified at pharmacy refill < 95% took longer to recover CD4 T cell count (50 or100 cells/µl higher) during the follow-up period (Wald test $p < 0.01$). In multivariate analysis, having pharmacy refill adherence < 95% , having a baseline CD4 T cell count < 200 cells/µl, being unable to recall the diagnosis date and a having higher weight were significant predictors of detectable viral load. Only pharmacy refill < 95% adherence and being unable to recall diagnosis were significant predictors of immunological failure. **Conclusions:** Pharmacy refill has the potential to predict virological failure and to identify patients to consider for viral load monitoring and HIVDR testing in RLS. Combining adherence with the existing strategy of immunological monitoring improves the prediction of virological outcome.

484. Sania A, Spiegelman D, Rich-Edwards J, Okuma J, Kisenge R, Msamanga G, Urassa W, Fawzi WW. The contribution of preterm birth and intrauterine growth

restriction to infant mortality in Tanzania. Paediatric and perinatal epidemiology. 2014 Jan 1; 28(1):23-31.

Background: Our objectives were to examine the associations of neonatal and infant mortality with preterm birth and intrauterine growth restriction (IUGR), and to estimate the partial population attributable risk per cent (pPAR%) of neonatal and infant mortality due to preterm birth and IUGR. **Methods:** Participants were HIV-negative pregnant women and their infants enrolled in Dar es Salaam, Tanzania. Gestational age calculated from date of last menstrual period was used to define preterm, and small for gestational age (SGA) was used as proxy for IUGR. Survival of infants was ascertained at monthly follow-up visits. Cox proportional hazard models were used to estimate the associations of preterm and SGA with neonatal and infant mortality. **Results:** Study included 7225 singletons, of whom 15% were preterm and 21% were SGA; majority of preterm or SGA babies had birthweight ≥2500 g. Compared to term and appropriately sized babies (AGA), relative risks (RR) of neonatal mortality among preterm-AGA was 2.6 [95% CI 1.8, 3.9], RR among term-SGA was 2.3 [95% CI 1.6, 3.3], and the highest risk was among the preterm-SGA babies (RR 15.1 [95% CI 8.2, 27.7]). Risk associated with preterm was elevated throughout the infancy, and risk associated with SGA was elevated during the neonatal period only. The pPAR% of neonatal mortality for preterm was 22% [95% CI 17%, 26%] and for SGA it was 26% [95% CI 16%, 36%]. **Conclusions:** Preterm and SGA birth substantially increased the risk of mortality. Interventions for prevention and management of these conditions are likely to reduce of infant mortality in Tanzania.

485. **Saria WE. Pressure Ulcers And Associated Factors Among Patients Admitted To The Hospital In Dar es Salaam Tanzania. Master of Science in Nursing (Critical Care and Trauma)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Pressure ulcers cause major morbidity and reduce the quality of life for patients and their caregivers. These ulcers result from multiple factors including: stress, time, spasticity, infection, oedema, enervation, moisture, and poor nutrition. More than 60% of pressure ulcers develop within the hospital. No published studies have been

conducted in Tanzania to determine the prevalence of pressure ulcers and their associated factors among patients admitted to the hospital. There is a need for better understanding of the prevalence of pressure ulcers, their associated factors, and their treatment modalities in order to develop comprehensive strategies for pressure ulcer management. **Objective:** To determine the prevalence of pressure ulcers and their associated factors among patients admitted to Muhimbili National Hospital (MNH), Muhimbili Orthopedic Institute (MOI), Temeke, and Ocean Road Hospital (ORH). **Methods:** This study was a descriptive cross-sectional quantitative design. The study was conducted between March and May 2015. A total of 239 immobile patients were selected by using convenience sampling. Data were collected using an interviewer-administered questionnaire. The researcher completed physical assessment of each respondent to determine the proportion of pressure ulcers. The collected data were analyzed using SPSS Version 20.0. Chi – square test and odds ratio (OR) were calculated to determine statistical significance. **Results:** Of the 239 respondents; 52.7% were male, and 43.1% were between 18 and 40 years of age. The majority were farmers and business people (41.4%). Most of the respondents had at least primary level of education. Of the 239, 189 respondents (79.1%), presented with pressure ulcers. And most (43.5%) of the respondents with ulcers were found in Temeke hospital. The Majority of the respondents (45.2%) reported that the pressure ulcers developed at home; while 81(33.9%) developed while admitted to the hospital. Almost 70% of ulcers were clean and 19.2% were located on the sacrum. There was a statistically significant difference between state of unconsciousness's and development of pressure ulcers ($P<0.05$). The following were predictors of pressure ulcer development: Age above 66 ($P<.0.01$); state of unconsciousness ($P<0.05$); and length of hospital stay between one and seven days ($P<0.05$). However; smoking, blood pressure, body weight, type of illness and frequency of changing position were not significant predictor of having pressure ulcers in this study. Results showed that pressure ulcers were commonly managed by using honey and oil. Most of ulcers were managed with antibiotic ointment and cream (74.5%) while minorities (0.8%) of pressure ulcers were managed by using lavender oil. Majority (69.9%) of the respondents showed improvement. **Conclusions:** Prevalence of pressure ulcers was high among immobile conscious respondents. Most of the pressure ulcers were developed at home and the majority

presented with clean ulcers. Most of the pressure ulcers were located on the sacrum. Age, state of consciousness, and length of hospital stay contributed to the development of pressure ulcers. Antibiotic ointment was the most commonly used treatment for pressure ulcers. **Recommendations:** 1. early implementation of pressure ulcers prevention strategies among immobile patients is essential. 2. Earlyidentification of high-risk patients upon admission and during each shift is important. 3. Health education for relatives and caregivers before discharge home of immobile patients is critical to preventing ulcer formation. 4. In addition, relatives should be trained and allowed to assist in turning patients every two hours in order to compensate for inadequate nursing staff.

486. Saronga HP, Dalaba MA, Dong H, Leshabari M, Sauerborn R, Sukums F, Blank A, Kaltschmidt J, Loukanova S. Cost of installing and operating an electronic clinical decision support system for maternal health care: case of Tanzania rural primary health centres. BMC health services research. 2015; 15(1):1.

Background: Poor quality of care is among the causes of high maternal and newborn disease burden in Tanzania. Potential reason for poor quality of care is the existence of a "know-do gap" where by health workers do not perform to the best of their knowledge. An electronic clinical decision support system (CDSS) for maternal health care was piloted in six rural primary health centers of Tanzania to improve performance of health workers by facilitating adherence to World Health Organization (WHO) guidelines and ultimately improve quality of maternal health care. This study aimed at assessing the cost of installing and operating the system in the health centers. **Methods:** This retrospective study was conducted in Lindi, Tanzania. Costs incurred by the project were analyzed using Ingredients approach. These costs broadly included vehicle, computers, furniture, facility, CDSS software, transport, personnel, training, supplies and communication. These were grouped into installation and operation cost; recurrent and capital cost; and fixed and variable cost. We assessed the CDSS in terms of its financial and economic cost implications. We also conducted a sensitivity analysis on the estimations. **Results:** Total financial cost of CDSS intervention amounted to 185,927.78 USD. 77% of these costs were incurred in the installation phase and included all the activities in preparation for the actual operation of the system for client care. Generally, training made the largest

share of costs (33% of total cost and more than half of the recurrent cost) followed by CDSS software- 32% of total cost. There was a difference of 31.4% between the economic and financial costs. 92.5% of economic costs were fixed costs consisting of inputs whose costs do not vary with the volume of activity within a given range. Economic cost per CDSS contact was 52.7 USD but sensitive to discount rate, asset useful life and input cost variations. **Conclusions:** Our study presents financial and economic cost estimates of installing and operating an electronic CDSS for maternal health care in six rural health centres. From these findings one can understand exactly what goes into a similar investment and thus determine sorts of input modification needed to fit their context.

487. Sawe H, Mfinanga J, Mwafongo V, Reynolds T. Ultrasound measurement of the inferior vena cava to evaluate volume status in patients requiring fluid resuscitation at Muhimbili National Hospital. ***3rd MUHAS Scientific Conference, 2015.***

Background: Monitoring fluid responsiveness is key for better prognosis of critically ill patients with hypotension and/or shock. Central venous pressure (CVP) is used as a standard measure of volume status; however it is expensive, invasive and in some cases unreliable predictor of volume status. **Objective:** To determine if ultrasound measurement of IVC diameter can predict fluid responsiveness in patients requiring fluid resuscitation at EMD-, MNH. **Methods:** Prospective observational study of patients presenting at EMD-MNH with hypovolemia and requiring fluid resuscitation. A structured physician data sheet was used to record serial vital signs, measured IVC during initial fluid bolus and the treating clinician's impression of patient volume status and suspected cause of hypotension. Subjects were stratified by presenting Caval Index (CI) and clinical estimation of volume status. A T-test was used to compare the mean change in mean arterial pressure (MAP) per unit volume. **Results:** Three hundred sixty four (364) patients were enrolled. 48.6% of patients had a CI <50% while 51.4% patients had a CI ≥ 50%. Patients with CI ≥ 50% had a 2.8 ($p<0.0001$) fold greater fluid responsiveness than patients with CI<50%. Caval Index (CI) was lower and volume responsiveness higher in patients whose clinicians rated them as moderate and severely dehydrated as compared with those rated mild. However there was an overlap of CI and fluid responsiveness values in these clinical categories. **Conclusion:** Ultrasound

measurement of the IVC diameter can predict fluid responsiveness in patients requiring intravenous fluids.

488. **Sawe HR, Mfinanga JA, Mwafongo V, Reynolds TA, Runyon MS. Trends in mortality associated with opening of a full-capacity public emergency department at the main tertiary-level hospital in Tanzania.** ***International journal of emergency medicine*****, 2015; 8(1):1.**

Background: Emergency medicine is an emerging specialty in Sub-Saharan Africa, and most hospitals do not have a fully functional emergency department (ED). We describe the mortality rates of the Muhimbili National Hospital (MNH) in Dar es Salaam, Tanzania before and after the opening of a full-capacity ED. Methods: This retrospective study investigated ED and hospital mortality rates for patients admitted to MNH from January 2008 to January 2012. This period represents 2 years before and 2 years after the opening of the full-capacity ED in January 2010. Trained abstractors analyzed patient care logbooks, attendance registers, nurse report books, and death certificates. The January 2008 to December 2009 data are from the limited-capacity casualty room (precursor of the ED), and for February 2010 to January 2012, they are from the new ED. Data are presented as proportions or differences with 95 % confidence intervals (CIs).**Results:** During the 4-year study period, the number of visits increased from 53,660 (January 2008 to December 2009) in the casualty room to 77,164 (February 2010 to January 2012) in the new ED. During this time, the overall hospital mortality rate decreased from 13.6 % (95 % CI 13.3–13.9 %) in the January 2008 to December 2009 period to 8.2 % (95 % CI 8.0–8.3 %) in the February 2010 to January 2012 period. The corresponding casualty room and ED mortality rates were 0.34 % (95 % CI 0.25–0.35 %) and 0.74 % (95 % CI 0.68–0.80 %), respectively. In the casualty room, the most commonly reported cause of death was lower respiratory tract infection and least common was poisoning. In the new ED, the most commonly reported cause of death was congestive cardiac failure and the least common was cancer. **Conclusions:** The opening of a full-capacity ED in a tertiary-level hospital in sub-Saharan Africa was associated with a significant decrease in hospital mortality. This is despite a small, but significant, increase in the mortality rate in the ED as compared to that in the casualty room that it replaced.

489. **Schell CO, Castegren M, Lugazia E, Blixt J, Mulungu M, Konrad D, Baker T. Severely deranged vital signs as triggers for acute treatment modifications on an intensive care unit in a low-income country. *BMC research notes*. 2015; 8(1):1.**

Background: Critical care saves lives of the young with reversible disease. Little is known about critical care services in low-income countries. In a setting with a shortage of doctors the actions of the nurse bedside are likely to have a major impact on the outcome of critically ill patients with rapidly changing physiology. Identification of severely deranged vital signs and subsequent treatment modifications are the basis of modern routines in critical care, for example goal directed therapy and rapid response teams. This study assesses how often severely deranged vital signs trigger an acute treatment modification on an Intensive Care Unit (ICU) in Tanzania. **Methods**: A medical records based observational study. Vital signs (conscious level, respiratory rate, oxygen saturation, heart rate and systolic blood pressure) were collected as repeated point prevalences three times per day in a 1-month period for all adult patients on the ICU. Severely deranged vital signs were identified and treatment modifications within 1 h were noted. **Results**: Of 615 vital signs studied, 126 (18%) were severely deranged. An acute treatment modification was in total indicated in 53 situations and was carried out three times (6%) (2/32 for hypotension, 0/8 for tachypnoea, 1/6 for tachycardia, 0/4 for unconsciousness and 0/3 for hypoxia). **Conclusions**: This study suggests that severely deranged vital signs are common and infrequently lead to acute treatment modifications on an ICU in a low-income country. There may be potential to improve outcome if nurses are guided to administer acute treatment modifications by using a vital sign directed approach. A prospective study of a vital sign directed therapy protocol is underway.

490. Schmidt V, Sikasunge CS, Odongo-Aginya E, Simukoko C, Mwanjali G, Alarakol S, Ovuga E, Matuja W, Kihamia C, Löscher T, Winkler AS. Taenia solium metacestode preparation in rural areas of sub-Saharan Africa: a source for diagnosis and research on cysticercosis. *African health sciences*. 2015; 15(1):58-67.

Background: Taenia solium metacestodes/cysts obtained from pig carcasses constitute a primary source for diagnostic tools used for the detection of human cysticercosis. Data on T. solium cyst preparation in Africa is still scarce but required to establish independent

reference laboratories. **Objectives:** The aim of the present study is a) to present the likely yield of T. solium cyst material by the use of two different preparation methods in the field and b) to investigate its suitability for immunodiagnosis of human cysticercosis. **Methods:** In Zambia, Uganda and Tanzania 670 pigs were screened for T. solium infection. Cysts were prepared by `shaking method´ and 'washing method'. Generated crude antigens were applied in a standard western blot assay. **Results**: 46 out of 670 pigs (6.9%) were found positive for T. solium (Zambia: 12/367, 3.3%; Uganda: 11/217, 5.1%; Tanzania 23/86, 26.7%). Mean values of 77.7 ml whole cysts, 61.8 ml scolices/membranes and 10.9 ml cyst fluid were obtained per pig. Suitability of collected material for the use as crude antigen and molecular diagnostic techniques was demonstrated. **Conclusion:** This study clearly shows that T. solium cyst preparation in African settings by simple field methods constitutes an effective way to obtain high quality material as source for diagnostic tools and research purposes.

491. **Seleki FB. Characteristics of Patients on Second-Line A Antiretroviral Therapy (Art) Attending Urban Care And Treatment Clinics (Ctc) In Dar Es Salaam. Master of Medicine (Internal Medicine)** ***Dissertation 2015. Muhimbili University of Health and Allied sciences*****. I**

ntroduction: Sub—Saharan Africa is the worlds most severely affected region with human immunodeficiency virus (HIV). It shelters about two thirds of the total number of people living with HIV globally. In Tanzania, the incidence is higher among sexually active age group with urban residents almost twice as likely to be HIV positive as rural residents. Antiretroviral therapy has saved millions of lives by transforming human immunodeficiency virus infection from a fatal into a chronic disease. By 201 1 approximately 260,000 of Tanzanians were receiving antiretroviral therapy. Emergence of antiretroviral therapy (ART) drug resistance and treatment failure is becoming a challenge in the management of HIV infected patients. Reports show there is a rise in the number of patients failing first-line ART in Sub Saharan Africa, with more patients in need of switching to second-line ART each given year. This study aimed at describing the characteristics of patients who are on second-line ART due to failure of the first-line ART. It also did shed light into the pattem of the known predictors of ART treatment failure in Dar es Salaam urban settings. **Objective**: To describe the characteristics of HIV

infected patients on second-line antiretroviral therapy in patients attending urban care and treatment clinics in Dar es Salaam. **Methodology:** This was a hospital based, comparative descriptive cross-sectional study done nom March 2014 to August 2014. The study population comprised of HIV infected patients on antiretroviral therapy (ART) aged 18 years or older. Patients on second- line ART were from Amtulabhai Karimjee clinic (AKC) care and treatment clinic (CTC) whose characteristics were compared to patients on first-line ART at Amana CTC. Patients were systematically sampled until a sample size of 102 patients &om each study centre was reached. Pretested questionnaires were used to collect socio- demographic, clinical and laboratory characteristics. The collected data were analyzed using Statistical Package for Social Sciences Version 21. **Results:** A total of 204 patients were studied, 102 patients from AKC CTC and 102 from Amana CTC. Majority of the patients at AKC, 52/l02 (5l %) and 54/l02 (52.9%) from Amana were in the 30-44 years age group. There was female preponderance in both groups 63.7% and 73.5% from AKC and Amana respectively. About three quarters (76.5%) of the patients at AKC had been on ART for more than Eve years while those at Amana (58.9%) had used ART for less than tive years. A larger proportion of the patients at AKC (58.8%) had baseline CD4 count of less than l00cells/ul with a median baseline CD4 count of 72cells/pl (25.5-l92.8cells/pl). Seventeen patients (16.7%} of those on second-line ART had changed antiretroviral A drug regimens more than three times. More patients at AKC (61.2%) had anemia at, the study time as compared to 51% at Amana. The mean: l: SD serum ALT and creatinine of patients on second-line were 28.4il9.Sunits/litre and 0.95d:0.3mg/dl respectively. The more prevalent known predictors of treatment failure in this study were younger age of < 40 years at initiation of ART (67.6%), low baseline CD4 count of < l00cells/ul (58.8%) and poor adherence to ART which was 12.7%. **Conclusion:** The patients attending Urban Care and treatment clinics are predominantly female and majority is in the 30-44 years age group. Majority of the patients on second-line ART were initiated on ART with very low CD4 count (<l00cells/ul) and had been on ART for longer duration (> 5 years), this observations were contrary to those on first-line ART. Patients on second-line ART had relatively higher mean serum creatinine and platelet levels. Among the known predictors of treatment failure that p were studied, younger age at initiation of ART (age<40 years)

was the most l prevalent (67.6%) in this population on second-line ART. **Recommendation:** More efforts at reducing HIV transmission especially in the most affected age groups so as to reduce the number of patients initiating ART at a younger age, and also early detection of HIV infection status so as to prevent initiation of treatment with very low immunity and thus reduce the burden of HIV treatment failure.

492. Semakafu A, August F. Institutionalised Gender Inequity in secondary education in Tanzania: Exploring the community schools access. *3rd MUHAS Scientific Conference, 2015.*

Background: Despite Tanzania commitment towards ensuring that its population is educated for social development, women continue to inequitably benefit from education opportunities and therefore remain marginalised in all aspect of development opportunities. Adoption of Arusha declaration, the Universal Primary Education, Musoma resolution MEMKWA and several related measures were adopted as part of expanded access to education for the population. Lack of education continues to be a stumbling block for women to access equitably development opportunities and decision-making positions. **Aim:** This paper aim at discussing the gender outcome of the implementation of expanded access through community schools to both boys and girls enrolled in such schools. **Methods:** Desktop review of Ministry of Education data and Qualitative enquiry with stakeholders in Kyela district and Rufiji district was done to identify the access trend and situation facing students in community schools **Results:** The result indicate that there is high drop-out rate for girls compared to boys, It was further found out that a large percentage of girls drop out of school due to pregnancy. Poverty, unsafe passage to and from schools and lack of safe hostel facilities have resulted Community schools to benefit negatively on girls than boys and therefore serve as institutionalised tool. The design of community school results in inequity of access with girls systematically removed from education opportunities **Conclusion:** For community schools to benefit both boys and girls equitably, the government needs to use gender analysis to ensure conducive environment for girls to benefit from expanded secondary education opportunities

493. **Semakafu A, Purvis L. Using Technology and Case-Based Approaches to Compare HIV in Tanzania and the US. *3rd MUHAS Scientific Conference,* 2015.**

Background: Since 2012, faculty exchanges between MUHAS and Dartmouth College have occurred with the development of HIV and gender modules exploring HIV in two contrasting contexts, Tanzania and the US. In 2012, women in Tanzania were found to have nearly a 50% higher rate of HIV than men (6.2% versus 3.8%). In contrast, in the US, men who have sex with men accounted for 63% of all new infections in 2010.2 Information and communications technology (ICT) was used to support the exchanges, the development of the modules, and to make virtual teaching possible. **Aim:** This presentation aims at discussing the importance of using the ICT to bridge the geographical and cultural gap between two institutions to develop sustainable educational programs that improve students' understanding of gender and HIV in different cultures and contexts. **Methods:** MUHAS and Dartmouth used ICT to plan, develop, and implement student-centered, active learning sessions. Two cases set in Tanzania and the US were developed and used to compare and contrast HIV gender-based issues. Further, using ICT technologies, MUHAS faculty were able to guest lecture in a US-based classroom setting. **Results:** While gender vulnerability to HIV is a global health issue, the contexts (culture) contribute to the nature and extent of vulnerability. Using ICT allowed for a Tanzanian-US faculty exchange that illuminated risk factors in two vastly different settings. **Conclusion:** The use of ICT has proven effective in enhancing the sustainability of teaching global health issues and HIV between MUHAS and Dartmouth College; having a joint programme broadened students' understanding of issues. The collaboration enhanced the capacity of MUHAS faculty to apply e-learning methods in their teaching activities and started initiatives to launch MUHAS's Distance Learning Masters Programme which is in the formative stages.

494. **Serina P, Riley I, Stewart A, Flaxman AD, Lozano R, Mooney MD, Luning R, Hernandez B, Black R, Ahuja R, Alam N. A shortened verbal autopsy instrument for use in routine mortality surveillance systems. *BMC medicine*. 2015; 13(1):1.**

Background: Verbal autopsy (VA) is recognized as the only feasible alternative to comprehensive medical certification of deaths in settings with no or unreliable vital

registration systems. However, a barrier to its use by national registration systems has been the amount of time and cost needed for data collection. Therefore, a short VA instrument (VAI) is needed. In this paper we describe a shortened version of the VAI developed for the Population Health Metrics Research Consortium (PHMRC) Gold Standard Verbal Autopsy Validation Study using a systematic approach. **Methods:** We used data from the PHMRC validation study. Using the Tariff 2.0 method, we first established a rank order of individual questions in the PHMRC VAI according to their importance in predicting causes of death. Second, we reduced the size of the instrument by dropping questions in reverse order of their importance. We assessed the predictive performance of the instrument as questions were removed at the individual level by calculating chance-corrected concordance and at the population level with cause-specific mortality fraction (CSMF) accuracy. Finally, the optimum size of the shortened instrument was determined using a first derivative analysis of the decline in performance as the size of the VA instrument decreased for adults, children, and neonates. **Results**: The full PHMRC VAI had 183, 127, and 149 questions for adult, child, and neonatal deaths, respectively. The shortened instrument developed had 109, 69, and 67 questions, respectively, representing a decrease in the total number of questions of 40-55 %. The shortened instrument, with text, showed non-significant declines in CSMF accuracy from the full instrument with text of 0.4 %, 0.0 %, and 0.6 % for the adult, child, and neonatal modules, respectively. **Conclusions:** We developed a shortened VAI using a systematic approach, and assessed its performance when administered using hand-held electronic tablets and analyzed using Tariff 2.0. The length of a VA questionnaire was shortened by almost 50 % without a significant drop in performance. The shortened VAI developed reduces the burden of time and resources required for data collection and analysis of cause of death data in civil registration systems.

495. Shabani SS, Ezekiel MJ, Mohamed M, (et al.) "Knowledge, attitudes and practices on Rift Valley fever among agro pastoral communities in Kongwa and Kilombero districts, Tanzania." ***BMC infectious diseases.*** **2015; 15(1): 1.**

Background: Rift valley fever (RVF) is a re-emerging viral vector-borne disease with rapid global socio-economic impact. A large RVF outbreak occurred in Tanzania in 2007 and affected more than half of the regions with high (47 %) case fatality rate. Little is

known about RVF and its dynamics. A cross sectional study was conducted toassess the knowledge, attitudes and practices regarding RVF in Kongwa and Kilombero districts, Tanzania. **Methods:** We conducted a cross sectional survey among a randomly selected sample of individuals in 2011. We administered questionnaires to collect data on demographic characteristics, knowledge on symptoms, mode oftransmission, prevention, attitudes and health seeking practices. **Results:** A total of 463 community members participated in this study. The mean (±SD) age was 39.8 ± 14.4 years and 238 (51.4 %) were female. Majority of respondents had heard of RVF. However, only 8.8 % knew thatmosquitoes were transmitting vectors. Male respondents were more likely to have greater knowledgeabout RVF.A small proportion mentioned clinical signs and symptoms of RVF in animals while 73.7 % mentioned unhealthypractices related to handling and consumption of dead animals. Thorough boiling of milk and cooking of meatwere commonly mentioned as preventive measures for RVF. Majority (74.6 %) sought care for febrile illness athealth facilities. Few (24.3 %) reported the use of protective gears to handle dead/sick animal while 15.5 % wereconsuming dead animals. **Conclusion:** Our study highlights the need to address the limited knowledge about RVF and promoting appropriate andtimely health seeking practices. Rift valley fever outbreaks can be effectively managed with collaborative efforts of lay andprofessional communities with a shared perception that it poses a serious threat to public and animal health. The factthat this study was conducted in "high risk transmission areas" warrants further inquiry in other geographic regions withrelatively low risk of RVF.

496. **Shadrack S. Evaluation of Acute Toxicity of Concomitant Chemo radiation for Cervical Carcinoma Patients with and without HIV Infection at Orci, Dar Es Salaam, Tanzania Master of Medicine (Clinical Oncology)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Cancer of the cervix is the most frequently diagnosed cancer among women in Tanzania; most of the patients come late to the hospital with advanced stage disease. Treatment of cervical cancer depends on tumor size, disease stage and histology. Early diagnosis of the carcinoma of uterine cervix is potentially curable. Recently there has been an improvement in survival of cervical cancer patients as a result of concomitant chemo-radiation. However, ability of radiotherapy to cure locally advanced cervical

cancer is limited by tumor size because doses required to treat large tumors exceed the limit of toxicity in normal tissues, hence chemo radiotherapy is associated with significantly increased morbidity. **Objectives:** This study evaluated acute treatment related toxicity and quality of life for cervical cancer patients with or without HIV infection treated with concomitant chemo radiation at ORCI. **Study design:** Hospital based Cross-sectional study. **Setting:** Ocean Road Cancer Institute (ORCI).**Subjects:** A total of 152 cervical cancer patients were recruited over a period of three months, from October to December 2013. All participants were consented for HIV testing and were treated with combination chemo-radiation therapy. **Main Outcome Measures:** The severity of acute treatment related toxicity was graded using WHO criteria for grading toxicity and the evaluation of effects of treatment on patient's quality of life was done using WHO/ECOG performance scale. **Results:** The most common acute toxicity encountered in majority of participants was nausea and vomiting followed by anemia, diarrhea, dysurea, skin reaction, leucopenia, raised serum creatinine levels and thrombocytopenia. Total number of participants enrolled was 152 of which 26 participants were HIV positive and 126 participants were HIV negative. Fifteen (57.7%) of HIV positive and fifty five (43.7%) of HIV negative participants had skin reaction while sixteen (61.5%) of HIV positive and forty eight (38%) of HIV negative participants had diarrhea. However, twenty two (85%) of HIV positive as compared to one hundred and six (84%) participants presented with nausea and vomiting while sixteen (61.5%) of HIV positive and fifty six (44.4%) of HIV negative participants had dysuria. Generally, the overall acute treatment related toxicity was observed more in HIV positive than HIV negative participants although the observed difference was not statistically significant At the sixth week of treatment, poor QOL was observed in twenty three (88%) and eighty eight (70%) of HIV positive and negative participants respectively, the finding was statistically significant. **Conclusion:** The study has shown that HIV positive cervical cancer patients also experienced more acute treatment related toxicity and poor quality of life as compared to HIV negative participants.

497. **Shafiq M. "Issues in the Implementation of Quality Improvement Initiatives: *An Empirical Investigation from the Textile Companies of Pakistan*." 2015.**

This paper aims to identify the issues faced by the textile companies of Pakistan during the Implementation of Improvement Initiatives (QIIs). The literature is reviewed to identify the major issues Faced by different companies during the Implementation of (QIIs). A self-completion Questionnaire was developed. A total of one thousand And fifty questionnaires were sent to the member Companies of All Pakistan Textile Mills Association (APTMA) located in the province of Punjab. From The textile companies, senior managers from multidepartment Including Quality, Operations, Finance, Sales & Marketing and Human Resource were selected as the respondents for this study. The Findings of this study indicated that managers' Awareness of TQM, multiple quality initiatives, a Mindset that quality is a money wasting activity, the Mis-matched organizational culture, a lack of top Management commitment and lack of communication Are the major issues which hinder the successful? Implementation of (QIIs). This study has also indicated that contingency factors like size and type of textile companies has a relationship with the issues

498. Shafiq K, Muhammad AS, Aziz I. "TREATMENT OF UNSTABLE DISTAL RADIUS FRACTURES BY PERCUTANEOUS PINNING AND PLASTER CAST IMMOBILIZATION." *Gomal Journal of Medical Sciences.* 2015. 13(3).

Background: Treatment of displaced fractures of the distal end of radius has changed over the course of time. This study was conducted to determine the functional and radiological outcome of percutaneous pinning followed by plaster cast for unstable fractures of distal aspect of radius. **Material & Methods:** This descriptive study was conducted at DHQ Teaching Hospital D.I.Khan, from April 2009 to September 2012. A total of 32 patients with mean age of 58 years having unstable fractures of distal radius were included in the study. They were all operated within 48 hours by closed reduction and percutaneous K-wire fixation and POP cast. Mean follow-up was 28 weeks (range 22-32 weeks) during which patients were assessed both radiologically and functionally using criteria of Jakim et al. **Results:** On radiological assessment, mean volar tilt was corrected to 3° (normal 11°). Mean radial height was 10 mm (normal 12 mm) and mean

radial inclination was 22o (normal 23°). On functional assessment, 16 (50%) patients showed excellent, 12 (38%) showed good results while 4 (12%) gave fair outcome. Poor result was not encountered in any patient. **Conclusion:** Percutaneous K-wire fixation and plaster cast immobilization can restore radiographic parameters to nearly normal values and provide good functional results without much complication.

499. **Shafiq M, Hussain GA, Elkalashy. "Integration of online proactive diagnostic scheme for partial discharge in distribution networks."** ***Dielectrics and Electrical Insulation, 2015. 22(1): 436-447.***

Partial discharge (PD) diagnostic is considered as the main concern while making condition assessment plan for medium voltage assets. PD detection and localization in multi-section (straight and branched power lines) MV network is difficult by using the conventional Time Domain Reflectometry and Time Difference of Arrival methods. It is due to interconnected cables of different lengths and properties which make the interpretation of PD signals quite complex as compared to single cable routes. This paper presents an online technique of PD localization in MV cable network. PD activity emits current pulses propagating away from the PD site. Polarity of the detected PD pulses with reference to polarity of the supply voltage determines the direction of arrival of these pulses. Comparison of the polarity of PD pulses identifies the faulty section of the overhead covered conductor line as well as the cable network. A detailed discussion has been presented to address the practical issues of sensor implementation and polarity comparison in order to ensure the accuracy of polarity based direction of arrival (DOA) assessment during field application. Evaluation of DOA is based on directionally calibrated sensors. Allocated induction sensors are employed along the feeder for integrated implementation of proposed technique in accordance with the distributed agent for improving the network reliability.

500. Shafiq M, Arif S, Ahmad I."Elastic and mechanical properties of lanthanide monoxides." ***Journal of Alloys and Compounds.*** **2015. 618: 292-298.**

In this article we communicate theoretical results of the mechanical properties of lanthanide monoxide LnO (Ln = La, Ce, Pr, Nd, Sm, Eu, Tb, Ho, Er and Yb) i.e., bulk modulus, shear modulus, Young’s modulus, anisotropic ratio, Kleinman parameters,

Poisson's ratio, Lame's coefficients, sound velocities for shear and longitudinal waves, and Debye temperature. Cauchy pressure and *B*/*G* ratio are also investigated to explore the ductile and brittle nature of these compounds. The calculations are performed with the density functional theory based full potential linearized augmented plane waves (FP-LAPW) method. The calculated results reveal that lanthanide based monoxides are mechanically stable and possess good resistive power against elastic deformations. Therefore, these mechanically stable materials can effectively be used for practical applications. The computed DOSs shows the metallic character of these compounds. Contour plots of the electron charge densities are also computed to reveal the nature of bonding in these compounds.

501. **Shafiq M, Ayyagari RS, Ehaab M. "Multiaxial yield surface of transversely isotropic foams: Part II—Experimental."** ***Journal of the Mechanics and Physics of Solids.*** **2015. 76: 224-236.**

A robust understanding and modeling of the yield behavior in solid foams under complex stress states is essential to design and analysis of optimal structures using these lightweight materials. In pursuit of this objective a new custom-built Multi-Axial Testing Apparatus (MATA) is developed to probe the yield surface of transversely isotropic Divinycell H-100 PVC foam under a multitude of uniaxial, biaxial and triaxial strain paths. Experimental yield data produced constitutes the most comprehensive data set ever produced for any foam as it covers the entire spectrum of stress paths from hydrostatic compression to hydrostatic tension. Experimental results reveal that yielding in foams exhibits not only a quadratic pressure dependence, which is widely recognized in literature, but also a significant linear pressure dependence, which has been largely overlooked in previous studies. A new energy-based yield criterion developed for transversely isotropic foams is also validated using the experimental yield data.

502. **Shafiq M, Farheen K. "Red cell antigen loss in a patient with chronic myeloid leukemia: A case of ABO discrepancy."** ***Transfusion and Apheresis Science. 2015: 52(1): 103-104.***

Change in ABO antigen expression on the surface of neoplastic cells has been seen for a variety of tumor types. This phenomenon has been linked with myeloid neoplasms as

well but is reported infrequently. Here, we report a rare cause of ABO discrepancy in an elderly female having chronic myeloid leukemia.

503. **Shafiq M, Ghatu S. "An Extended Mohr–Coulomb Model for Fracture Strength of Intact Brittle Materials under Ultrahigh Pressures."** ***Journal of the American Ceramic Society*** **2015.**

An extended Mohr–Coulomb model is proposed to represent the pressure-dependent strength of intact structural ceramics under quasi-static and dynamic loading rates at high pressures. A plot of normalized shear stress versus hydrostatic pressure for a range of structural ceramics revealed that despite the differences in material properties, test methods, and strain rates, the failure strength data fall in a narrow range, which can be represented by a unified model. The overall deformation behavior of structural ceramics and their strain rate dependence of strength in multiracial loading at high pressure beyond Huguenot elastic limit (HEL) can be explained by exponential pressure dependence in the Mohr–Coulomb model. The analysis also suggests that the influence of strain rate on strength of a ceramic diminishes with increase in confinement pressure.

504. **Shafiq M, Hussain AG, Kutt L."Partial discharge diagnostic system for smart distribution networks using directionally calibrated induction sensors."** ***Electric Power Systems Research.*** **2015. 119: 447-461.**

Asset management and optimization is becoming increasingly adaptable for distribution utilities with the help of developments in the digital and wireless technology. Medium voltage cables, cable accessories (joints and terminations) and distribution transformers are most prone to the insulation defects. This paper presents an online partial discharge (PD) diagnostic system to detect and locate the weak insulation spots developed in the network components spread over the distribution area. The PD pulses originating and propagating from the defect site arrive at feeder joints, terminals and T-splices and are reflected from there. This makes the interpretation of the measured signals ambiguous in order to find the location of PD faults, while using conventional location techniques. An improved technique is introduced to monitor multi-section multi-branched cable network. Identification of the faulty location is carried out by using direction of arrival (DOA) of PD signals. The DOA of PD signals is obtained by using directionally calibrated

Rogowski coil induction sensors. Polarity of captured PD signals with reference to supply voltage, determines their DOA. Rogowski coil along with its directional sensing feature is simulated in ATP-EMTP. The DOA technique is integrated over a medium voltage (MV) cable network and its performance is evaluated using ATP-EMTP environment. Frequency-dependent JMarti cable model is used for simulation. An intelligent algorithm is proposed for practical implementation of DOA technique for PD monitoring and automated location. Proposed scheme can be adopted in distribution automation system to improve proactive diagnostic capabilities of the network.

505. **Shafiq M, Iftikhar A, Jalali-Asadabadi S. "Mechanical properties and variation in SOC going from La to Nd in intermetallic RIn 3 and RSn 3 (R= La, Ce, Pr, Nd).**" ***RSC Advances. 2015. 5(49): 39416-39423.***

First principle studies of the cubic rare-earth intermetallic RIn_3 and RSn_3 (R = La, Ce, Pr, Nd) have been carried out within the framework of density functional theory using the full potential linearized augmented plane waves plus local orbital method (FP-LAPW + lo). The calculated structural parameters with different functionals are found to be consistent with the experimental results. The effect of the Hubbard potential on the density of states is discussed in detail. It is observed that the inclusion of spin–orbit coupling (SOC) causes degeneracies of the electronic band structures in the vicinity of the Fermi level of these compounds. Furthermore, the SOC effect enhances as one goes from La to Nd in a compound, which demonstrates the interesting nature of this effect in the periodic table. The elastic constants, bulk moduli, shear moduli, Young's moduli, anisotropy, Kleinman parameters, Poisson's ratios, sound velocities for shear and longitudinal waves, and Debye temperatures are calculated and discussed, which reveal that these compounds are ductile in nature.

506. **Shafiq M, Kelvin F, Hans L. "Management of Malignant Pleural Effusion: A Cost-Utility Analysis."** ***Journal of bronchology & interventional pulmonology. 2015. 22(3): 215-225.***

Background: Malignant pleural effusion (MPE) is associated with a significant impact on health-related quality of life. Palliative interventions abound, with varying costs and degrees of invasiveness. We examined the relative cost-utility of 5 therapeutic

alternatives for MPE among adults. **Methods**: Original studies investigating the management of MPE were extensively researched, and the most robust and current data particularly those from the TIME2 trial were chosen to estimate event probabilities. Medicare data were used for cost estimation. Utility estimates were adapted from 2 original studies and kept consistent with prior estimations. The decision tree model was based on clinical guidelines and authors' consensus opinion. Primary outcome of interest was the incremental cost-effectiveness ratio for each intervention over a less effective alternative over an analytical horizon of 6 months. Given the paucity of data on rapid pleurodesis protocol, a sensitivity analysis was conducted to address the uncertainty surrounding its efficacy in terms of achieving long-term pleurodesis. **Results**: Except for repeated thoracentesis (RT; least effective), all interventions had similar effectiveness. Tunneled pleural catheter was the most cost-effective option with an incremental cost-effectiveness ratio of $45,747 per QALY gained over RT, assuming a willingness-to-pay threshold of $100,000/QALY. Multivariate sensitivity analysis showed that rapid pleurodesis protocol remained cost-ineffective even with an estimated probability of lasting pleurodesis up to 85%. **Conclusions**: Tunneled pleural catheter is the most cost-effective therapeutic alternative to RT.This, together with its relative convenience (requiring neither hospitalization nor thoracoscopic procedural skills), makes it an intervention of choice for MPE.

507. Shafiq M, Muhammad A "On the survival models for step-stress experiments based on fuzzy life time data." ***Quality & Quantity*****. 2015. 1-13.**

Time analyses accelerated life testing (ALT) has a significant importance. In accelerated life testing the measurements of life times are recorded under various conditions which are more severe than usual environment. The techniques related to the inference of life times in ALT are usually based on precise measurements. In practical applications life time data have two types of uncertainty, one is stochastic variation and the other is fuzziness. Classical stochastic models are developed to draw inference based on the variation among observations, and do nothing with fuzziness. By doing so the analyses are based on incomplete information and can lead to misleading conclusions. In this study estimators are proposed to cover fuzziness in addition to stochastic variation of the life

times. The results based on the proposed methods are more suitable for realistic life time data.

508. Shafiq M, Nadeem M, Sattar Z, Khan SM, Faheem SM, Ahsan I, Khan MI. Identification of risk factors for hepatitis B and C in Peshawar, Pakistan. *HIV/AIDS (Auckland, NZ)*. 2015: *7*(223).

Background: Hepatitis B and C need immediate worldwide attention as the infection rates are too high. More than 240 million people have chronic (long-term) liver infections. Every year, about 600,000 people die globally due to the acute or chronic consequences of hepatitis B and more than 350,000 people die from hepatitis C-related liver diseases. **Methods:** Our study was designed as a case-control, descriptive study. It was conducted through formal interviews by using structured questionnaires. A total of 100 cases were included, with four controls for each case. **Results:** This study confirms household contact, history of dental work, history of surgery, sexual contact, and history of transfusion (blood and its components) as the main risk factors which are responsible for the increased prevalence of hepatitis. **Conclusion:** The important risk factors, responsible for the high prevalence of hepatitis B and C in our society are household contact, history of dental work, history of surgery, sexual contact, and history of transfusion (blood and its components). The odds ratio of probability for these risk factors are: 4.2 for household contact history, 4.1 for history of dental work, 3.9 for sexual contact, 2.7 for history of surgery, and 2.1 for history of transfusion. Associations of other predictor variables (diabetes status, education level, profession, contact sports, intravenous drug abuse, residence, immunosuppression, and skin tattoos) were not statistically significant.

509. Shafiq M, Sang-Hoon L, Youngmee J. "Strategies for recruitment of stem cells to treat myocardial infarction: *Current pharmaceutical design.* 2015. 21(12):1584-1597.

Heart failure is one of the most prominent causes of morbidity and mortality worldwide. According to the World Health Organization, coronary artery disease and myocardial infarction (MI) are responsible for 29% of deaths worldwide. MI results in obstruction of the blood supply to the heart and scar formation, and causes substantial death of cardiomyocytes in the infarct zone followed by an inflammatory response. Current

treatment methodologies of MI and heart failure include organ transplantation, coronary artery bypass grafting, ventricular remodeling, cardiomyoplasty, and cellular therapy. Each of these methodologies has associated risks and benefits. Cellular cardiomyoplasty is a viable option to decrease the fibrosis of infarct scars, adverse post-ischemic remodeling, and improve heart function. However, the low rate of cell survival, shortage of cell sources and donors, tumorigenesis, and ethical issues hamper full exploitation of cell therapy for MI treatment. Consequently, the mobilization and recruitment of endogenous stem/progenitor cells from bone marrow, peripheral circulation, and cardiac tissues has immense potential through harnessing the host's own reparative capacities that result from interplay among cytokines, chemokines, and adhesion molecules. Therapeutic treatments to enhance the mobilization and homing of stem cells are under development. In this review, we present state-of-the-art approaches that are being pursued for stem cell mobilization and recruitment to regenerate infarcted myocardium. Potential therapeutic interventions and delivery strategies are discussed in detail.

510. Shafiq M, Viertl R. Empirical reliability functions based on fuzzy life time data. *Journal of Intelligent & Fuzzy Systems*, 2015. *28*(2): 707-711.

Reliability analysis is one of the significant applications of statistics. Many parametric and non-parametric techniques are available for reliability estimation based on precise life time observations, without considering the uncertainty of individual observations. But life time observations are not precise measurements but more or less fuzzy. Therefore by considering life time measurements as precise numbers we may lose information and get misleading results. This study is aimed to present some non-parametric estimates for reliability functions based on fuzzy life time data.

511. Shafiq M, Youngmee J, Soo HK. "Stem cell recruitment, angiogenesis, and tissue regeneration in substance P-conjugated poly (l-lactide-co-ε-caprolactone) nonwoven meshes." *Journal of Biomedical Materials Research Part A*. 2015. 103(8): 2673-2688.

Recruitment of endogenous stem cells to impaired tissues holds enormous potential to regenerative medicine. In this study, we examined whether covalently conjugated substance P (SP) would significantly enhance the recruitment of stem cells and promote angiogenesis in poly(l-lactide-*co*-ε-caprolactone) (P(LA-*co*-CL)) meshes. SP was

conjugated with star-shaped P(LA-*co*-CL) copolymer using carbonyldiimidazole chemistry. P(LA-*co*-CL) and SP-conjugated star-shaped P(LA-*co*-CL) copolymers were mixed in appropriate proportions and electrospun to fabricate nonwoven meshes. Amino acid analysis confirmed the conjugation of SP with star-shaped P(LA-*co*-CL) copolymers. Conjugated SP remained bioactive and recruited human bone-marrow-derived mesenchymal stem cells in an *in vitro* transwell migration assay. Moreover, SP was released in a sustained fashion from the nonwoven meshes for up to 30 days. P(LA-*co*-CL) as well as SP containing meshes were implanted subcutaneously in Sprague-Dawley rats ($n = 16$) for 14 and 21 days. Hematoxylin and eosin staining of the retrieved samples revealed cellularization of P(LA-*co*-CL) as well as SP containing meshes. Large and mature blood vessels were observed in greater numbers in SP-containing meshes compared with their control counterparts as revealed by Masson's trichrome staining. We also observed a larger number of von Willebrand factor-positive vessels in SP-containing meshes than in the controls. Significantly large numbers of CD29- and CD90-positive stem cells were recruited in the meshes containing SP. Collectively, these findings suggest that the methodology presented may have broad applications in regenerative medicine, and these novel scaffolding materials can be used for *in situ* tissue regeneration of soft tissues.

512. **Shafiq M, Yousef H, Al-Saadi T. A time efficient nonlinear tracking controller. In *Industrial Technology (ICIT), IEEE International Conference on*. 2015: 69-73.**

This article proposes a time efficient set-point tracking controller. The proposed controller synthesizes smooth control input within the input saturation limits of a class of second order nonlinear continuous time plants. The Lyapunov function based analysis assures the global asymptotic stability of the closed-loop and the convergence of the set-point tracking error to zero. The computer simulation and laboratory scale experimental results are included in the paper to verify the theoretical findings.

513. **Shayo G, Minja L, Egwaga S, Bakari M, Mugusi F. Symptom based screening tool in ruling out active tuberculosis among HIV infected patients eligible for isoniazid preventive therapy in Tanzania**. ***3rd MUHAS Scientific Conference, 2015.***

Objectives: We assessed the usefulness of the National TB and Leprosy Control Program (NTLP) symptom based tuberculosis (TB) screening tool in identifying HIV infected patients eligible for isoniazid preventive therapy in Muhimbili National Hospital, Dar es Salaam Tanzania. **Methods:** This was a descriptive cross sectional study. Data collected included socio-demographic and clinical data. Chest x-ray, sputum for acid fast bacilli (AFB) microscopy, mycobacterial culture, CD4+ count and complete blood count were done. Patients were considered not having active TB if they presented with no symptom in the screening tool which comprised of these symptoms; cough, fever, and excessive night sweats for ≥ 2 weeks; weight loss of ≥ 3 kg in 4 weeks and haemoptysis of any duration. The reference standard was a negative culture for Mycobacterium tuberculosis. **Results:** We enrolled373 patients, of whom 72.1% were females.Active pulmonary TB was found in 4.1% (14/338) of the participants as defined by a positive culture. The sensitivity and specificity of the NTLP screening tool was 71.4% (10/14) and 75.9% (246/324) respectively. False negative rate was 28.6% (4/10). Cough, fever for ≥ 2 weeks and weight loss were independent predictors of NTLP- defined TB. Cough ≥ 2 weeks predicted TB when a positive culture was used to define TB. **Conclusion:** The screening tool had fairly good sensitivity and specificity for TB screening; however there is a possibility that about 29% of the screened population will be given IPT while they are supposed to receive a full course of TB treatment.

514. **Shayo G, Mugusi F. Prevalence and risk factors for sleep apnoea hypopnoea syndrome in Kinondoni municipality, Dar es Salaam Tanzania**. ***3rd MUHAS Scientific Conference, 2015.***

Background: Obstructive sleep apnea (OSA) is characterized by nocturnal snoring interrupted by recurrent obstructive apnea-hypopnoea episodes resulting into daytime hyper somnolence. The magnitude of this condition in Kinondoni municipality is not known. **Methods:** Households were randomly sampled. Eligible members were interviewed and underwent anthropometric measurements. Epiworth sleepiness scale was used to asses one's likelihood of daytime sleepiness. OSA was defined as the presence of 2 of the following: Symptoms of obstructive sleep apnoea, a BMI ≥ 28 kg/ m² and a total Epworth score≥ 15. **Results:** We studied 1249 people, 65.2% were females. Night snoring was reported by 9.3% respondents. The prevalence of OSA was 11.5%

(144/1249). OSA was significantly more common among females (12.9%), p = 0.038. OSA prevalence increased significantly with increasing age, (p <0.001), increased BMI, p value < 0.001. Respondents with central obesity and those who snored at night significantly presented with high prevalence of OSA, being 34% and 29.3% respectively, p value < 0.001 for each. The risk for OSA was higher among females, OR (95% CI) = 1.2 (0.8-2.0), p = 0.038, among age group 35-44 years compared to age group 18-24 years, p = 0.021, among overweight respondents compared to underweight, OR (95% CI) = 6.2 (3.4-11.3), p <0.001 and among obese respondents OR (95% CI) =2.0(1.2-3.4), p=0.008. Socio-economic status, cigarette smoking, alcohol consumption, hypertension and diabetes mellitus could not predict OSA. **Conclusions:** OSA is prevalent among residents of Kinondoni. Female sex, increased age, obesity and overweight were highly associated with OSA.

515. **Shayo G, Moshiro C, Aboud S (et al). "Acceptability and adherence to Ionized preventive therapy in HIV-infected patients clinically screened for latent tuberculosis in Dar es Salaam, Tanzania."** ***BMC infectious diseases*****. 2015; 15(1): 1.**

Background Proper adherence to ionized preventive therapy (IPT) may depend upon the results of tuberculosis (TB) screening test and patients' understanding of their risk of developing active TB. We conducted a study to assess the acceptability, adherence and completion profile of IPT among HIV-infected patients who were clinically screened for latent TB Infection (LTBI). **Methods:** A multicenter observational study was conducted in Dar es Salaam, Tanzania between February 2012 and March 2014. HIV-infected patients 10 years or older were clinically screened using a validated symptom-based screening tool to rule out active TB. Patients found to have no symptoms in the screening tool were given 300 mg of isoniazid (INH) daily for 6 months. Patients were followed up monthly at the National and Municipal hospital HIV clinics for INH refill and assessment of treatment adherence. Adherence was defined as consumption of 90 % or more of the monthly prescription of INH. Results All 1303 invited patients agreed to participate in the study. Of 1303 invited HIV-infected patients, 1283 (98.5 %) were recruited into the study. Twenty eight (2.2 %) did not complete treatment. Those who did not complete the treatment were exclusively adults aged 18 years or older, $p = 0.302$. The overall mean (±SD) adherence was 98.9 % (±2.9). Adherence level among children aged <18 years

(92.2 %) was significantly lower than adherence level among patients aged 18–29 years (98.3 %), 30–49 years (98.8 %) and ≥ 50 years (98.5), ***p***-value = 0.011. Sex, occupation, socio-economic status, duration of HIV infection, being on antiretroviral drugs (ARV) and duration of ARV use were not associated with adherence. **Conclusion**: IPT is highly accepted by HIV infected patients. Patients demonstrated high level of adherence to IPT. The level of adherence among children was slightly lower than that among adults. IPT non-completers were exclusively adults. Children might need adult supervision in taking IPT.

516. Shayo G, Moshiro C, Aboud S (et al.) "Acceptability and adherence to ionized preventive therapy in HIV-infected patients clinically screened for latent tuberculosis in Dar es Salaam, Tanzania." ***BMC infectious diseases. 2015;*** **15(1): 1.**

Background Proper adherence to ionized preventive therapy (IPT) may depend upon the results of tuberculosis (TB) screening test and patients' understanding of their risk of developing active TB. We conducted a study to assess the acceptability, adherence and completion profile of IPT among HIV-infected patients who were clinically screened for latent TB Infection (LTBI). **Methods:** A multicenter observational study was conducted in Dar es Salaam, Tanzania between February 2012 and March 2014. HIV-infected patients 10 years or older were clinically screened using a validated symptom-based screening tool to rule out active TB. Patients found to have no symptoms in the screening tool were given 300 mg of isoniazid (INH) daily for 6 months. Patients were followed up monthly at the National and Municipal hospital HIV clinics for INH refill and assessment of treatment adherence. Adherence was defined as consumption of 90 % or more of the monthly prescription of INH. Results All 1303 invited patients agreed to participate in the study. Of 1303 invited HIV-infected patients, 1283 (98.5 %) were recruited into the study. Twenty eight (2.2 %) did not complete treatment. Those who did not complete the treatment were exclusively adults aged 18 years or older, ***p*** = 0.302. The overall mean (±SD) adherence was 98.9 % (±2.9). Adherence level among children aged <18 years (92.2 %) was significantly lower than adherence level among patients aged 18–29 years (98.3 %), 30–49 years (98.8 %) and ≥ 50 years (98.5), ***p***-value = 0.011. Sex, occupation, socio-economic status, duration of HIV infection, being on antiretroviral drugs (ARV) and duration of ARV use were not associated with adherence. **Conclusion:** IPT is highly

accepted by HIV infected patients. Patients demonstrated high level of adherence to IPT. The level of adherence among children was slightly lower than that among adults. IPT non-completers were exclusively adults. Children might need adult supervision in taking IPT.

517. **Shayo G, Mugusi F. Prevalence and risk factors for obstructive sleep apnoea in Dar es Salaam, Tanzania. *Tanzania Journal of Health Research*. 2015; 17(1).**

Background: Obstructive sleep apnoea (OSA) is a common cause of daytime sleepiness, a condition associated with accidents, antisocial behaviour, mood disturbances, cognitive dysfunctions and inefficiency at work. This study was carried out to determine the prevalence and risk factors for obstructive sleep apnoea in Dar es Salaam, Tanzania. **Methods:** Multistage random sampling of households was done. Eligible members were interviewed and underwent anthropometric measurements. Epiworth sleepiness scale was used to asses one's likelihood of daytime sleepiness. OSA was defined as the presence of 2 of the following: symptoms of obstructive sleep apnoea, a Body Mass Index (BMI) ≥ 28 kg/ m² and a total Epworth score≥ 15. **Results:** A total of 1249 people were involved in the study. Of these, 65.2% were females. Night snoring was reported by 9.3% of the respondents. The prevalence of OSA was 11.5% (144/1249). OSA was significantly more common among females (12.9%) (p = 0.038) than males. OSA prevalence increased significantly with increasing age (p <0.001) and increasing BMI (p- value < 0.001). Respondents with hypertension, central obesity and those who snored at night significantly presented with high prevalence of OSA, being 26.5%, 34% and 29.3%, respectively (p- value <0.001 for each). OSA was found in 26.3% of diabetics (p= 0.042). The odds of OSA were significantly higher among females, OR (95% CI) = 2.0 (1.2-3.2), among age group 45-54 years, OR (95% CI) = 2.2 (1.1-4.3), among those with central obesity OR (95% CI) = 3.4 (2.1- 5.4) and among night snorers OR (95% CI) = 2.8(1.7-4.6). Socio-economic status, cigarette smoking, alcohol consumption, hypertension and diabetes mellitus could not predict OSA. **Conclusions:** OSA is prevalent among residents of Dar es Salaam and significantly associated with age 45 years or older, female gender, high socioeconomic status, obesity and overweight and night snoring. Predictors of OSA were female sex, age above 45 years, central obesity, and night snoring. Clinicians should therefore actively look for OSA in patients with these characteristics.

518. Shayo J. Household and Health Facility Factors for Low Enrolment to CHF Scheme in Rombo District, Kilimanjaro. *3rd MUHAS Scientific Conference,* 2015.

Background: Tanzania faces the challenge of finding a suitable mechanism for health care financing to ensure equitable access to health for all her citizens. The Community Health Fund (CHF) has been shown to be a well-functioning health care financial system. However, member level enrolment to this scheme in many districts has remained unexpectedly low despite multiple awareness campaigns. **Aim:** To identify household heads' and health staffs' factors that contributes to low enrolment level to CHF scheme in Rombo District. **Methods:** A cross-sectional study employing both qualitative and quantitative data collection was done. The study involved 144 household heads; 150 exit patients; 36 health staffs and 3 CHF district officials. Descriptive statistics were generated from quantitative data using SPSS version 20, and themes were generated from qualitative data using the ATLAS.ti 6 computer program. The generated themes were embedded into the quantitative results to enrich these findings.**Results:** Health staffs' practices were highly accepted by exit patients. Health staff had positive opinion of CHF usefulness. However, there was lack of knowledge about CHF operations and use of private health facilities among household heads. This seemed to have a substantial negative effect on CHF enrolment levels. Lack of fixed time for registration of CHF members was identified to create a loophole for drop out and non-enrolment.**Conclusion:** The District CHF Management should strengthen community sensitization and education about the CHF scheme. Revision of the rules that guide implementation of CHF in Rombo district is deemed necessary to remove the loopholes for non-enrolment and drop out of the scheme.

519. Shedafa R, Manyanga V, Kaale E, Bonsman C. Development and Validation of stability indicating HPLC assay method for Lamivudine/Tenofovir (300mg/300mg) in tablet. *3rd MUHAS Scientific Conference, 2015.*

Background: According to the current, WHO algorithm for the Quality of Drug, Stability Testing has become key information on Drug registrations and approval because stability study explain about how the quality of bulk drug or drug product varies with time under the influence of various environmental factors such as temperature, humidity,

light and help to determine recommended storage condition, establish retesting time and shelf lives. HPLC methods are specific, selective and sensitive to quantitative and qualitative analysis. **Objective**: The study will target to develop and validate a stability indicating method for generic Lamivudine /Tenofovir (300mg/300mg) fixed dose combination formulation and to conduct stability testing. **Methodology:** Optimizations of chromatographic conditions was performed by improving separations of mains active ingredients and impurities, factors such as resolution factor, theoretical plate, capacity factor and tailing factor were determined by using and found to be within required specifications. Method Robustness was assessed by using chemometric experimental design using central composte face centered design by moddle 4.0 software. **Results:** During the first part of method development, method optimization was carried out to improve separations of main API of lamivudine and Tenofovir with their main degradants. There was a good separation between the main active ingredient and its impurities and thus the system suitability was confirmed.**Conclusion:** The optimized conditions will be used on further method validations as it shows that all impurities were able to separate from the main API of Lamivudine and Tenofovir. The method will be used for stability testing of LT in Tablets.

520. **Shedafa R, Manyanga V, Sempombe J, Kaale E, Haefele C. Optimizations of dissolution sink conditions for Efavirenz 600 mg in tablet. *3rd MUHAS Scientific Conference, 2015.***

Background: When developing dissolution procedure, one goal is to have sink conditions, thus the volume of medium at least three times that required in order to form a saturated solution of drug substance. When sink conditions are present, it is more likely that dissolution results will reflect the properties of the dosage form. For drug substances that exhibit low solubility in aqueous media throughout the pH range, the addition of surfactants is recommended due to their physiological role in solubilizing drugs in vivo and in this study SDS was used.**Objective**: The study was targeting to optimize the dissolution medium conditions of SDS that was used to release Efavirenz 600mg in tablets. **Methodology:** Different amounts of SDS ranging from 0.1% ,0.5%,1%,1.5% to 2% SDS were used to determine the optimal release of Efavirenz with a paddle method at 50 rpm and a temperature of 37°C. Optimization of Efavirenz release in different

concentrations of SDS was preceded by determining the sink conditions of efavirenz in different concentrations of SDS. **Results:** More than 80% at 45 minutes release of Efavirenz 600mg was achieved by using 1% SDS and the saturation solubility concentration was 2.44 mg/L which was enough to release efavirenz in present dosage form.**Conclusion:** The optimized sink conditions for Efavirenz 600 mg Tablets reduces the usage of SDS from 2% to 1% which also reduces operational costs.

521. **Sheikh HM. Assessment of in-use stability of quinine oral liquid pediatric formulation using high performance thin layer chromatography. Master of Pharmacy (Quality Control & Quality Assurance)** ***Dissertation 2015. Muhimbili University of Health and Allied Science*****s.**

This study focused on the assessment of in-use stability of commercially manufactured and extemporaneously prepared quinine oral liquid formulations. The samples were subjected to stability study in three environmental conditions i.e. Real time, 30 +2°C, 75 + 5% RH, accelerated condition, 40 + 2°C, 75 + 5% RH and uncontrolled room condition, 28 + 2°C, 75 + 5% RH. The MUHAS Pharm R&D in house HPTLC method for quinine content determination was adopted and utilized to establish whether it can separate quinine from its degradants and impurities by subjecting quinine sulfate standard solution to stress test. The results showed the separation of quinine and its degradants when subjected to basic, peroxide and/ or peroxide with ferrous stress test. This includes the formation of new unidentified peaks in the densitogram. Therefore the adopted analytical method was found to be stability indicating. Samples on each environmental study condition were categorized as multiple opening and single opening. Samples subjected to single opening stress test were opened just once to serve as control whereas for multiple opening, the samples were opened on each sampling day as scheduled to determine the changes to analytical parameters, assay and physical characteristics (odour, colour, resuspendability) and pH. Sampling was carried out at day 0, 3, 5, 7, 10, 14, 28 and 42. The study revealed that both formulations of quinine were stable throughout the study period and there was no significant decrease in potency as compared to day 0. Physical characteristics tests results revealed that extemporaneously prepared quinine formulation is prone to microbial attack. This was noticed on the day 14 of the study when samples changed in colour and odour. It was noticed that the samples had

unpleasant odour with a characteristic stale smell which is an indication of microbial activity. The microbial growth could have been due to using substandard excipients of non pharmaceutical grade or lack of current Good manufacturing practice (cGMP) during compounding. Commercial manufactured formulation was found to be physically stable throughout the study and no significant change was observed as compared to extemporaneous preparation. It is advised that further information on safe period for use should be conspicuously declared after breaking the seal in addition to storage instructions (store below 30°C, protect from light) and shelf life of a product. This could be a beginning of studying quinine stability with its impurities and degradation trend to minimize and possibly avoid serious toxic effects to patients consuming quinine liquid oral formulations having substantial quantities of impurities. It is however, recommended to extend the study to 6-12months period which could specifically define and identify the behavior of quinine oral liquid formulations with its degradants.

522. **Sheikh M, Manyanga V , Kaale E. Assessment of in-use stability of quinine liquid formulation using HPTLC.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Impurities could be as a result of decomposition of active pharmaceutical ingredient in a formulation which has been exposed to extreme conditions after first opening of container. This occurs usually to a multidose product including quinine liquid formulation. This might pose risk to patient when consuming a product. To overcome this, stability indicating analytical method should be available to study the impurities and degradants characteristics. Quinine has few stability indicating assay methods available like HPLC and UV-Vis spectroscopy. HPTLC method approach for this compound is not yet established, only limited information is available. Therefore a forced degradation test was done by challenging the compound to study its physicochemical characteristics. **Aim:** The study focuses on assessment of in-use stability of commercially manufactured and extramponeously prepared liquid quinine formulations.**Methodology:** The available samples were collected from identified medicine outlets, of which part of it are stored at manufacturer's recommended storage condition i.e. store below 30^0C, protected from light, and other samples are subjected to stability chamber. Extramponeously prepared quinine syrup was subjected to similar manner of stability studies for two weeks to compare and to establish stability profile. **Results:** The HPTLC method of assay of

quinine available at department of medicinal chemistry, school of pharmacy, MUHAS, was confirmed to be able to determine stablility. The was able to separate impurities and degradants and therefore suitable for the purpose of in-use stability studies. **Conclusion:** This method can be used to determine the in-use stability period with regard to API and other physicochemical parameters.

523. **Shekalaghe B. Missed Opportunity for Dietary Non- Communicable Diseases Risk Assessment and its Influencing Factors in Health Care Facilities in Dar es Salaam Tanzania. Master of Public Health*, Dissertation 2015 Muhimbili University of Health and Allied Sciences.***

Background: Health care facilities offer opportunities for non-communicable diseases (NCDs) risk assessment and provision of preventive knowledge but data on such activities are limited. **Objectives:** The focus of this study was to investigate the situation of diet related NCDs risk factors assessment, preventive services and barriers to effective control of diet related NCDs and its risk factors and how are they perceived by health care workers. The study also aimed at assessing the magnitude of selected NCDs risk factors, and preventive knowledge on diet-related NCDs among patients attending health care facilities. Materials: A structured questionnaire was used to collect data on demographic characteristics andNCDs preventive information. Anthropometric and biochemical tools were used to measure NCDsrisks following standard procedures. Indepth interview guide was used to assess how healthcare workers perceive their roles in adressing risk factors associated with NCDs, It also used to explore health care workers (HCWs) opinions and their barriers in practice environment. **Methods:** The study comprised of 410 people aged 18 to 59 years who were receiving health services from health care facilities and 15 healthcare workers in Dar es Salaam. Interview guide questionnaires were based on the questions regarding preventive issues, patient's knowledge on the risk factors for diet related NCDs (blood pressure, blood sugar, and obesity). Review of patient treatment cards was done to see if there was any NCDs risk factor assessed during consultation. In-depth interview to the health care workers was done to explore their opinions and barriers in practice environment. Qualitative data were transcribed verbatim and analysed using content analysis approaches while the quantitative data were analyzed with the aid of Statistical package for social sciences

(SPSS version 16). **Results:** The main findings were noted that there were high proportions of NCDs risk factors, including raised blood pressure 26.6%, raised blood sugar 11.2%, overweight 25.8% and obesity 23.9%. Despite high proportions found in this study, majority of patients were not aware of their obese status, majority about 79.1% were never assesed for any NCD risk where as only 20.9% were assesed for at least once during their health facility visits. There was poor knowledge of risk factors, causes and prevention strategies among patients. The health care workers acknowledged the importance of performing routine assessment of NCDs risk factors to outpatients. This was made impossible due to heavy workload, lack of adequate number of trained staff, shortages of equipments/tools, reagents and lack of co-ordination in integrating preventive and curative care. **Conclusions and Recommendations:** The proportions of NCDs risk factors were high. Patients had limited knowledge on the causes and preventive measures for NCDs risks. The study confirmed the hypothesis that opportunities to reveal NCDs cases and related risk factors were missed. Interventions are needed to help HCWs recognize and provide appropriate management for NCDs.

524. **Shekalaghe B. Missed Opportunity for Dietary Non- Communicable Diseases Risk Assessment and its Influencing Factors in Health Care Facilities in Dar es Salaam Tanzania. Master of Medicine.** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Health care facilities offer opportunities for non-communicable diseases (NCDs) risk assessment and provision of preventive knowledge but data on such activities are limited. **Objectives:** The focus of this study was to investigate the situation of diet related NCDs risk factors assessment, preventive services and barriers to effective control of diet related NCDs and its risk factors and how are they perceived by health care workers. The study also aimed at assessing the magnitude of selected NCDs risk factors, and preventive knowledge on diet-related NCDs among patients attending health care facilities. **Materials:** A structured questionnaire was used to collect data on demographic characteristics and NCDs preventive information. Anthropometric and biochemical tools were used to measure NCDs risks following standard procedures. In depth interview guide was used to assess how healthcare workers perceive their roles in addressing risk factors associated with NCDs, It also used to explore health care workers

(HCWs) opinions and their barriers in practice environment. **Methods:** The study comprised of 410 people aged 18 to 59 years who were receiving health services from health care facilities and 15 healthcare workers in Dar es Salaam. Interview guide questionnaires were based on the questions regarding preventive issues, patient's knowledge on the risk factors for diet related NCDs (blood pressure, blood sugar, and obesity). Review of patient treatment cards was done to see if there was any NCDs risk factor assessed during consultation. In-depth interview to the health care workers was done to explore their opinions and barriers in practice environment. Qualitative data were transcribed verbatim and analyzed using content analysis approaches while the quantitative data were analyzed with the aid of Statistical package for social sciences (SPSS version 16). **Results:** The main findings were noted that there were high proportions of NCDs risk factors, including raised blood pressure 26.6%, raised blood sugar 11.2%, overweight 25.8% and obesity 23.9%. Despite high proportions found in this study, majority of patients were not aware of their obese status, majority about 79.1% were never assessed for any NCD risk where as only 20.9% were assessed for at least once during their health facility visits. There was poor knowledge of risk factors, causes and prevention strategies among patients. The health care workers acknowledged the importance of performing routine assessment of NCDs risk factors to outpatients. This was made impossible due to heavy workload, lack of adequate number of trained staff, shortages of equipments/tools, reagents and lack of co-ordination in integrating preventive and curative care. **Conclusions and Recommendations:** The proportions of NCDs risk factors were high. Patients had limited knowledge on the causes and preventive measures for NCDs risks. The study confirmed the hypothesis that opportunities to reveal NCDs cases and related risk factors were missed. Interventions are needed to help HCWs recognize and provide appropriate management for NCDs.

525. Shekalaghe B, Urassa D. Body Mass Index and self perceptions of weight status among outpatients attending hospital health facilities in Dar es Salaam. *East African Journal of Public Health*. 2015; 12(1): 940-947.

Background: Overweight/obesity is on the rise in developing countries, especially in urban areas. Although overweight/obesity is one of the leading preventable causes of death less is known about the prevalence of obesity and the perceptions about weight

among patients attending healthcare facilities. Previous studies have shown that correct perception of body weight is an important factor in weight control. This study determined prevalence of overweight/obesity and assessed perception scores about body weight among patients attending healthcare facilities in Dar es Salaam, Tanzania. **Methods:** In this study, a cross- sectional study was conducted in three district government hospitals in Dar es Salaam. A structured questionnaire was used to collect data on socio demographic characteristics and perception about body weight, Height and weight were measured following standard procedures. Chi-square tests and logistic regressions were used to determine the prevalence and demographic factors which influence perceptions about body weight. A total of 410 outpatients aged 18-59 years were randomly recruited into the study. **Results:** The prevalence of overweight and obesity among patients was 25.8% and 23.9%, respectively. This was higher among women compared to men (33% versus 14%). (P=0.02). Despite this higher prevalence, Majority of patients tended to underestimate their weight, (50.6%) considered their overweight as normal weight, (66.2%) perceived their obese status as normal. In total, only 41.2% of patients accurately classified their weight. Logistic regression analysis showed that Education level, (AOR=O.18. 95% CI 0.09-0.34), occupation (AOR=1.96 95% CI 0.86-4.50), and nutritional status (AOR=9.19, 95% CI 4.34-19.48), were significant predictors of correct perception of one's body weight. **Conclusions:** The prevalence of overweight and obesity is high in this population. However, more than half of overweight and obese outpatients had incorrect perception of their body weights. We recommend health facilities increase awareness of weight status and promote a healthy body weight. Increasing patient's awareness of their overweight problems is the first step in preventing diet related NCDs.

526. **Sheuya HS. Magnitude and factors associated withacute febrile illnesses among underfive children in a rural setting of muleba district in northern Tanzania. Master of Applied Epidemiology.** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences***.

Background: Fever is a very common symptom among most childhood infections. Malaria is always regarded to be among the leading causes of Acute Febrile Illnesses (AFI) among hospital admissions particularly in paediatric wards. However the prevalence of malaria in children aged 6-59 months in Tanzania has been shown to be

declining from 18 per cent (2007-08) to 10 per cent (2011-12). This clearly indicates that the proportion of febrile illness attributable to malaria will also decrease. Causes of febrile illnesses are difficult to distinguish from one another clinically. As clinical laboratory services are often limited in areas where febrile conditions are particularly common, clinicians may have few diagnostic tools to establish an etiologic diagnosis. This study determinedthe prevalenceand factors associating with acute febrile illnesses among children under-five in rural settings of northern Tanzania. **Methodology:** A cross-sectional study was done involving 28 randomly selected health facilities in Muleba district,Tanzania. Children with complaints of fever lasting not more than 72 hours were recruited. Structured questionnaires were used to extract information (e.g.; possession and condition of bed nets, breastfeeding,vaccination, nutrition status)from the study participants. Blood samples were collected and subjected to a series of investigations for detection of pathogens associated withAFI. **Results:** The study recruited 300 children aged between 6 and 59 months with a mean age of 26 months (SD15.3). Of all participants males constituted 51%. Bed net possession was 88% (264/300). Of the owned bed nets 66.3% (175/264) were in good physical condition. Majority (73.3%) of study participants were febrile (actual axillary temperature >37.2°C) during the time of interview. Overall proportion of pathogens detected were 58% (174/300), 1.3% (4/300) and 0.3% (2/300) for parasitic, bacterial and viral infection respectively. Of the detected pathogens 77.6% (135/174), 75%(3/4) and 100%(2/2) for parasitic, bacterial and viral infection respectively were associated with AFI. Also proportionof co-infection (bacterial-parasitic infection) among study participants was 0.7% (2/300).Male and female participants had AFIprevalence of 72.5% (111/153) and 74.1% (109/147) respectively. There was no significant difference of AFI proportion between the age groups.Of the mRDT and blood smear positive tests the prevalence of AFI was 77% and 76.2% respectively. **Conclusion:** There are causes of acute febrile illness other than malaria in Muleba district. Evidence of the significant association between acute febrile illness and factors such as; incomplete immunization, plasmodium infection and seeking care from traditional healers were established. Mosquito bed net ownership and use was found to be a protective factor for plasmodium infection. Recommendations: A detailed study on the aetiologies of AFI other than malaria is highly needed. The National Malaria

Control Programme should continuously carry out national campaigns on mosquito net use and devise a system for replacing torn mosquito nets. Likewise mass sensitization and health education by the Ministry of Health and Social Welfare on the importance of vaccination, rational use of drugs and clinic visits for under-fives should be the mainstay in reducing AFI.

527. Shimoda K, Leshabiri S, Horiuchi S, "Midwives' intrapartum monitoring process and management resulting in emergency referrals in Tanzania: a qualitative study." *BMC pregnancy and childbirth.* 2015; 15(1): 248.

Background: In the United Republic of Tanzania, the maternal mortality ratio, and neonatal mortality rate have remained high for the last 10 years. It is well documented that many complications of pregnancy are avoidable by providing skilled midwifery care during and immediately after childbirth. However, there have been delays in providing timely and necessary obstetric interventions, most likely due to lack of proper monitoring during labor. Yet, there has been little research concerning how midwives monitor the process of childbirth. Therefore, this study aimed to describe how midwives monitored and managed the process of childbirth to achieve early consulting and timely referral to obstetricians. **Methods**: The design was qualitative and descriptive, using data from comprehensive semi-structured interviews of midwives. The interviews were conducted at one hospital and one health center in Dar es Salaam, Tanzania's largest city. Eleven participants were purposively recruited and interviewed about their experiences managing complicated intrapartum cases. After the interviews, data were analyzed using content analysis. **Results:** Derived from the data were three activity phases: initial encounter, monitoring, and acting. During these phases, midwives noticed danger signs, identified problems, revised and confirmed initial problem identification, and organized for medical intervention or referral. The timing of taking action was different for each midwife and depended on the nature of the prolonged and obstructed labor case. **Conclusions:** For the majority of midwives, the processing of assessments and judgments was brief and without reflection, and only a few midwives took time to continue to monitor the labor after the initial identification of problems and before taking actions. To make a final judgment that the labor was becoming prolonged or obstructed, midwives should consider taking time to review and synthesize all their findings**.**

528. **Shivakumar HR, Siju NA. "conductometric investigations on oxalic acid in 2-propanol+ water mixtures at .*298.15, 303.15, 308.15 AND 313.15 K.* 2015; 4(11).**

Electrical conductivity of oxalic acid has been measured in 2-propanol + water mixtures covering the approximate range of dielectric constant $73.0 \geq \varepsilon \geq 49.6$ at 298.15, 303.15, 308.15 and 313.15 K. The conductance data have been analysed by using Shedlovsky equation to obtain limiting molar conductance, association constant and Walden product. The limiting molar conductance and Walden product values were found to decrease with increase in x2pr (mole fraction of 2-propanol). Oxalic acid is found to be a structure breaker in the solvent media explored. The results obtained from the study were used to elicit the nature of ion-ion and ion-solvent interactions

529. **Siddharthan T, Ramaiya K, Yonga G, Mutungi GN, Rabin TL, List JM, Schwartz JI. Noncommunicable Diseases in East Africa: Assessing the Gaps in Care and Identifying Opportunities for Improvement. *Health Affairs*. 2015. *34*(9): 1506-1513.**

The prevalence of noncommunicable diseases in East Africa is rising rapidly. Although the epidemiologic, demographic, and nutritional transitions are well under way in low-income countries, investment and attention in these countries remain focused largely on communicable diseases. We discuss existing infrastructure in communicable disease management as well as linkages between noncommunicable and communicable diseases in East Africa. We describe gaps in noncommunicable disease management within the health systems in this region. We also discuss deficiencies in addressing noncommunicable diseases from basic science research and medical training to health services delivery, public health initiatives, and access to essential medications in East Africa. Finally, we highlight the role of collaboration among East African governments and civil society in addressing noncommunicable diseases and we advocate for a robust primary health care system that focuses on the social determinants of health.

530. **Siddiqi N, Sneha M, Shafiq M. "Altruistic Behavior and Inter-Personal Trust among Behavioral Sciences and Engineering Students. 2015.**

The purpose of the present investigation was to compare the levels of Inter-Personal Trust and Altruistic Behavior between Behavioral Sciences and Engineering students. Convenience sampling technique has been used to collect data from 100 college students

studying in Jamia MilliaIslamia University. Of these 100 students, 50 were from Behavioral Science stream (Sociology, Psychology, Political Science and Social Work) and the other 50 were engineering Students. The two groups of students (Engineering and Behavioral Sciences students) were compared on the said variables namely, Inter-Personal Trust and Altruistic Behavior, using Independent sample t-test. Results suggest that Students studying Behavioral Sciences and those Studying engineering differ significantly in terms of Inter-Personal Trust and Altruistic behavior. Moreover, the mean values indicate that Behavioral science students tend to score higher on Altruism as well as Inter-Personal Trust as compared to engineering students.

531. **Simeo J. Prevalence of sexual violence and health related effects among students in co-education public day secondary schools in Kinondoni Municipality, Dar es Salaam. Master of Public Health,** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: Sexual violence is a completed or attempted sex act against the victim's will or involving a victim who is un¬able to consent such as abusive sexual contact, forced abortion, forced prostitution, trafficking, non-contact sexual abuse and female genital mutilation. In Tanzanian context, little is known about health related effects resulting from sexual violence. There is knowledge gap on prevalence of sexual violence, attitude towards forms of sexual violence, help seeking behavior, perceived characteristics of victims and perpetrators of sexual violence. **Objective:** The main objective of the study was to assess prevalence of sexual violence and health related effects to students in co-education public day secondary schools in kinondoni municipality, Dar es Salaam. Methodology A descriptive cross sectional study using quantitative data collection method in Kinondoni municipality, Dar es Salaam region. Self-administered questionnaire tools were used to collect data from form four students who were systematically selected from 5 randomly selected co-education public day secondary schools which were Makoka, Kigogo, Makurumla, Turiani and Manzese. **Results:** A total of 430 form 4 students from 5 out of 48 coeducation public day secondary schools with mean age 17.5±1.0 years, range of 15-22 years participated in this study. About 216 (50.2%) experienced at least one form of sexual violence. Chi square test showed higher proportion of students (61.5) who were victims of sexual violence

were aged ≥ 18 years than those (41.9%) aged <18 years (P value < 0.05). About 39(33.3%) of 117 female victims were impregnated. Higher proportion (45.6%) of 215 students experienced Low self-esteem by higher proportion (59.3%) of female than male students (28.9%) (p value <0.001). Among 216, majority 112 (51.9%) students reported incidents for help seeking. Majority 76 (61.3%) who reported were female as compared to 36 (39.1%) male students (P<0.01). At least 70% of 216 victims mentioned alcohol and drug use as one of the characteristics of perpetrators and victims of sexual violence. **Conclusion:** This study has shown that sexual violence and health related effects were big problems in co-education public day secondary schools and more reported in female than male students **Recommendations:** There is a need for instituting an intervention to control sexual violence in Co-education public secondary schools.

532. Simiyu S. Living conditions in the slums of Kisumu, Kenya: Challenges and Opportunities for Sustainability. *3rd MUHAS Scientific Conference, 2015.*

Background: Slum settlements are a common occurrence in Africa and the developing world. Each of these exhibit varied living conditions, which influence the lives of its dwellers, including their health status. Achieving Sustainable Development in these settlements thus calls for an understanding of these varied and different living conditions. **Aim:** Based on the living conditions framework, the aim of this study was to understand living conditions in the slums of Kisumu, Kenya, as a first step towards identifying opportunities for sustainable Development. **Methods:** This research employed qualitative methods to understand living conditions. These were participatory methods that included transect walks, interviews with stakeholders, informal conversations with slum residents, and ethnographic approaches. Qualitative data was analysed in a thematic approach, based on the living conditions framework. **Results:** The main dimensions of the framework (land tenure, infrastructure, housing unit quality and neighbourhood locations) were represented in the slums of Kisumu, but these interact in a complex mix and have an overall effect on health and wellbeing of Kisumu's slum residents. Consequently, this led to a modification of the framework in order to comprehensively study living conditions. **Conclusions:** Slums are significant settlements for the increasing urban population. It is important to understand the complex world in these slums in order to identify challenges and opportunities for achievement of the post 2015 sustainable

Development goals. Therefore, Sustainable Development programs need to be packaged differently to suit each slum settlement.

533. **Simon E. Satisfaction with treatment among patients who underwent tooth extraction under local anesthesia at the Oral and Maxillofacial Surgery Department, School of Dentistry . *3rd MUHAS Scientific Conference,* 2015.**

Background: In Tanzania, tooth extraction is the most common dental treatment procedure. Lack of alternative methods due to lack of personnel, equipment and materials and community's ignorance are the main factors. Recently patients' satisfaction has become an increasingly important indicator of quality of dental care. **Objective*:*** To determine satisfaction with dental treatment among patients who underwent tooth extraction under local anesthesia at the Oral and Maxillofacial Surgery Department, School of Dentistry. **Methods*:*** A cross–sectional descriptive study including randomly selected patients who underwent tooth extraction under local anesthesia from September 2011 to August 2012. Patients were interviewed immediately after treatment. They reported their satisfaction on a 5 – point modified Likert scale focusing on: technical quality of care, interpersonal aspects, waiting time, environment of the treatment areas and pain during tooth extraction.**Results*:*** A total of 765 patients participated. Out of these 242 (31.6%) were males. The age range was 14 to 85 years with mean age of 37.6 years. The age group 20-29 years had the highest number of patients; 240 (31.4%). Over 90% of the patients did not experience any pain during tooth extraction and were very satisfied with treatment offered. About 25% were satisfied with treatment but were not satisfied with the waiting time. Only 8.5% of the patients showed a low level of satisfaction. The main reason for dissatisfaction was experiencing pain during tooth extraction and the need of a repeat injection. **Conclusion*:*** Successful administration of local anesthesia led to high level of satisfaction by majority of patients undergoing tooth extraction. There is a great need to take measures of cutting down the waiting time for patients.

534. **Simon T, Nimrod M. "Tiotropium as part of inhaled polytherapy: Adherence and associated health-care utilization."*Respirology.* 2015; 20(2): 304-311**.

Background and objective: Previous studies had demonstrated association between Tiotropium therapy (once-daily inhaled anticholinergic) and reductions of exacerbations, improvements in dyspnoea and quality of life in chronic obstructive pulmonary disease (COPD) patients. Little is known about the influence of adherence to Tiotropium on health-care utilization. Our objective was to examine whether adherence to Tiotropium is associated with decreased health-care utilization. **Methods:** A computerized medical database was used to identify patients with COPD registered in an academic pulmonology institute who began therapy of Tiotropium 18 mg between 2008 and 2011 (n = 193). Adherence was assessed by calculating the proportion of days covered and defined as coverage of at least 80% of the follow-up period. Adherence to long-acting beta-agonists and/or inhaled corticosteroids (LABA and/or ICS) and health-care utilization were analysed 1 year before and 2 years after initiation of Tiotropium. A multivariate regression model was applied to examine determinants of change in health-care utilization. **Results:** The median age of study population was 67 (80% male). Forty-one per cent of study population (n = 79) adhered to Tiotropium. Hospitalization costs decreased 1 year following treatment initiation only among adherent patient when their adherence to LABA and/or ICS improved ($\beta = -463.6$, $P = 0.033$). This cost did not change significantly in the consecutive second year ($\beta = 206.3$, $P = 0.583$). **Conclusions:** Adherence to Tiotropium was associated with decreased hospitalizations only among patients who improved their adherence to LABA and/or ICS as well. Exploring reasons for high non-adherence and ways to improve adherence may optimize utilization of the scarce hospital resources.

535. **Simon T. "Positive stable densities and the bell-shape."** ***Proceedings of the American Mathematical Society.2015. 143(2): 885-895.***

We show that positive stable densities are bell shaped; that is, their n-Th derivatives vanish exactly n times on and have an alternating sign sequence. This confirms the graphic predictions of Holt and Crow (1973) in the positive case.

536. **Simón T, Ross A, Heffels K. "Polymeric electrospun scaffolds: neuregulin encapsulation and biocompatibility studies in a model of myocardial ischemia."** ***Tissue Engineering Part a.*** **2015; 21(9-10): 1654-1661.**

Cardiovascular disease represents one of the major health challenges in modern times and is the number one cause of death globally. Thus, numerous studies are under way to identify effective cell- and/or growth factor (GF)-based therapies for repairing damaged cardiac tissue. In this regard, improving the engraftment or survival of regenerative cells and prolonging GF exposure have become fundamental goals in advancing these therapeutic approaches. Biomaterials have emerged as innovative scaffolds for the delivery of both cells and proteins in tissue engineering applications. In the present study, electrospinning was used to generate smooth homogenous polymeric fibers, which consisted of a poly (lactic-co-glycolic acid) (PLGA)/NCO-sP (EO-stat-PO) polymer blend encapsulating the cardio active GF, Neuregulin-1 (Nrg). We evaluated the biocompatibility and degradation of this Nrg-containing biomaterial in a rat model of myocardial ischemia. Histological analysis revealed the presence of an initial acute inflammatory response after implantation, which was followed by a chronic inflammatory phase, characterized by the presence of giant cells. Notably, the scaffold remained in the heart after 3 months. Furthermore, an increase in the M2:M1 macrophage ratio following implantation suggested the induction of constructive tissue remodeling. Taken together, the combination of Nrg-encapsulating scaffolds with cells capable of inducing cardiac regeneration could represent an ambitious and promising therapeutic strategy for repairing diseased or damaged myocardial tissue.

537. Sirili N, Kiwara A, Simba D. Training and deployment of graduate level Human Resource for Health: A critical input for Vision 2025 Health sector goals. *3rd MUHAS Scientific Conference,* 2015.

Background: Human resource for health (HRH) is an essential building block for an effective and efficient health system. In Tanzania this component is faced by many challenges which in synergy with others make the health system inefficient. In vision 2025 the country recognizes the importance of the health care sector in attaining quality livelihood for its citizens. It is more than half-way since launching of this vision. **Objective:** To analyze the factors influencing training and deployment of graduate level HRH towards realization of the health care sector goals of the development vision 2025. **Methods:** A case study employing; key Informants interviews, observations and review of published and grey literature was used. We studied the factors influencing training and

deployment of graduate level HRH with a focus on three selected groups: Medical Doctors (MDs), Doctor of Dental Surgery (DDS) and Bachelor of Pharmacy (B.Pharm) from five health training institutions and Ministry of Health and Social Welfare (MoHSW) headquarters. **Results:** All training institutions studied are challenged by severe resource scarcity. These include: increasing underfunding, shortage of Academic and support staffs, limited infrastructure for both teaching and accommodation. The deployment of the graduate level HRH is influenced by: lack of co-ordination between the trainers and employers, limited budget allocated for recruitment. From 2006 to 2010 a total of 482 (38%) of MDs that graduated and reported for internship were not recruited. **Conclusion:** Quality livelihood as stated in vision 2025 will be a mirage if the challenges facing training and deployment of graduate level HRH will not be addressed timely. Strengthening of graduate level HRH management system is necessary in addressing the challenges facing training and deployment of the graduate level HRH.

538. **Sohal KP. The etiology, clinical findings and radiological patterns in traumatic spine injured patients attending Muhimbili Orthopeadic Institute. Master MMed (Radiology)** ***Dissertation 2015. Muhimbili University of Health Allied and Sciences*****.**

Introduction: Spinal trauma is a devastating event with high morbidity and mortality and many additional medical, psychological, social and financial consequences for patients, their families and the society. Spinal trauma is classified according to the mechanism of injury and the presence or absence of stability. A variety of imaging modalities, including radiography, computed tomography, and magnetic resonance imaging, are available for assessment of the injured spine. This research study discusses the various common demographics, the spinal vertebral injuries, associated factors and its related traumatic complications. **Objectives:** The main objective of the study was to determine the age, sex, cause, patterns, level and complications of the spinal injuries attained in patients attending Muhimbili Orthopedic Institute from July to December 2014. Methodology: The study was a hospital based descriptive cross-sectional study and included all the patients attending Muhimbili Orthopedic Institute with the attained diagnosis of Traumatic Spine Injury. Data regarding the research was obtained through patients file records, through patient interview and a structured questionnaire were filled with the data later entered in the statistical package for social science (SPSS 20) and further analysed

and then presented in forms like histograms, bar charts, graphs and pie charts. **Results:** 87 patients were involved in the study aged 4 to 81 years, with a mean age of 33 years. The commonest group to be involved was between 16-30 years with motor traffic accidents being the commonest cause of spine trauma followed by fall from height. The commonest vertebral spine injury seen was compression wedge fracture (35.6%), followed by dislocation (18.4%), and burst fracture (17.2%) and the most frequent spine level involved was lumbar spine (37.9%) followed by thoracic spine (33.3%). Paraplegia (33.3%) and quadriplegia (10.3%) were the two major neurological complications seen incurred by the spine trauma and head injury (33.3%) was the most associated injury accompanied followed by injury of the extremities and pelvis. Majority of the patients received conservative treatment though some were surgically treated too. One patient was referred abroad. **Conclusion:** Commonest cause of traumatic spine injury is motor traffic accidents and it is seen mainly affecting the young individuals mainly in their early 20's to early 30's and they are the main source of income in their families and are the building potentials of the country too. Traumatic spine injury is one of the major contributors of disability amongst the people. **Recommendation:** The source of the spine injury should be looked at, in other words, motor traffic accidents being the major cause of spine trauma should be tackled. Road safety measures and precautions should be taken and people should be educated and made aware of them too. Medical personnel's and the layman should be made aware of the log roll technique and prevent increase movement of the spine upon sustaining a spine injury. Furthermore, more research needs to be done with a bigger sample size to know more and create awareness on injuries sustained by spine trauma, the kind of appropriate radiological techniques involved with assistance in providing the timely and appropriate management.

539. **Soliman H, Muhammad S."Robust stabilisation of power systems with random abrupt changes."*Generation, Transmission & Distribution, IET. 2015. 9(15): 2159-2166.***

This study considers the stabilization of power systems subject to random jumps. Transient, permanent faults of power lines and the consequent switching of the associated circuit breakers are represented as a discrete-time Markov chain. The controller is designed for Markov jump linear systems based on transition probabilities obtained from

statistical data of the faults. The linear matrix inequalities framework is used as a tool for designing the proposed controller. The controller provides desired performance swiftness via regional pole placement with the constraint of system load variations and random variations in the topology. The effectiveness of the power system stabilizer is studied on a single-machine infinite-bus and multi-machine systems.

540. **Sommer M, Samuel L, Sylvia K. (at el) "“Bend a fish when the fish is not yet dry”: adolescent boys’ perceptions of sexual risk in Tanzania."** ***Archives of sexual behavior. 2015;*** **44(3): 583-595.**

Despite decades of effort, the spread of HIV/AIDS continues among many African young people. A key contributor is unsafe sexual behavior that is desired, persuaded, or coerced. We explored the masculinity norms shaping pubescent boys’ perceptions of and engagement in (unsafe) sexual behaviors in Tanzania. Through a comparative case study in rural and urban Tanzania, qualitative and participatory methods were used with 160 adolescent boys in and out of school to better understand the social and contextual factors promoting unsafe sexual behaviors. Adolescent boys in both the rural and urban sites reported struggling with intense sexual desires, strong peer pressures to have sex, and social norms dissuading condom use. A growing “normalization” of AIDS suggests messages promoting the dangers of HIV infection may be less effective. Findings reinforce the need for interventions with very young adolescents. Research is needed to identify more effective approaches for promoting safer sexual practices among boys in sub-Saharan Africa. Harm reduction approaches and gender transformative approaches might prove more effective than current HIV prevention efforts focused on youth.

541. Stefan DC, Masalu N, Ngendahayo L, Amadori D, Botteghi M, Mendy M, Othieno-Aabinya NA, Ngoma T, Asirwa F, Balogun O, Ngwa W. Pathology and oncology in Africa: education and training for the future in cancer research–East African Regional Meeting. ***Infectious Agents and Cancer*****. 2015; 10(1):1.**

According to the World Health Organisation (WHO), deaths from non-communicable diseases (NCDs) will increase globally, with the largest increase being on the African continent. On our continent, projections have indicated that deaths from NCDs will exceed all combined communicable, maternal, perinatal and nutritional diseases as the

most common causes of death by 2030. Hence, the importance of a functional and improved pathology system in the diagnosis of cancer cannot be debated.Recently, the African Organization for Research and Training in Cancer (AORTIC) organised its East African regional meeting in Mwanza, Tanzania on 25–26 June 2015, with the focus being 'Pathology and oncology: Education and training for the future in cancer research'. The main themes of the workshop were around improving cancer care and the role of twinning in Eastern Africa, in particular the Mwanza cancer project, telepathology, e-health and biobanking. The outcomes of a 2 day strategic meeting were developing an efficient and effective plan to guide the improvement in pathology training and cancer research in Africa.

542. **Storz C, Meindl M, Matuja W, Schmutzhard E, Winkler AS. Community-based prevalence and clinical characteristics of febrile seizures in Tanzania. *Pediatric research*. 2015.**

Background: The prevalence of febrile seizures (FSs) and epilepsy are often reported to be higher in sub-Saharan Africa. Furthermore, several studies describe complex features of FSs as risk factors for the development of subsequent epilepsy. **Methods:** During the period from 2002 to 2004 door-to-door studies with supplementary data collection were conducted in three different areas of Tanzania, examining the prevalence of FSs in 7,790 children between the age of 2 mo and 7 y at the time of the interview. The information on the presence of FSs of 14,583 children, who at the time of the interview were younger than 15 y, was collected in order to describe reported seizures, if any. **Results:** Overall, 160 children between 2 mo and 7 y with a prevalence rate of 20.5/1,000 (95% confidence interval: 17.5–23.9/1,000) met the criteria for FSs. The average age at onset was 2.2 (SD: 1.8) y and ~42% had complex FSs. Respiratory tract infections and malaria were the most frequent concomitant diseases. **Conclusion:** Our findings do not confirm the assumption of an increased prevalence of FSs in sub-Saharan Africa. However, the elevated number of complex FSs emphasizes the necessity of more reliable studies about FSs and its consequences. Febrile seizures (FSs) in children seem to occur frequently and often cause anxiety in parents. Prevalence rates from hospital- and community-based studies conducted up to now vary a lot according to the methods used, age definition and the country in which these studies were conducted (Supplementary Table S1 online). The

majority of the studies estimate a prevalence of FSs in about 2–4% of all children (1,2,3). However, prevalence rates range from 9.9/1,000 ascertained in Germany (4) to 116.1/1,000 determined in a rural population in Nigeria (5). Prevalence and incidence rates of FSs may be higher in regions of Asia and Africa, but epidemiological studies of low-income countries are scarce. Complex FSs have been reported to be more frequent in children in sub-Saharan Africa (6), and it is especially complex features, such as prolonged or focal seizures, that have been described as risk factors for the development of epilepsy (7,8,9) and may be related to the reported higher prevalence of epilepsy in sub-Saharan Africa (10,11). Furthermore, FS associated infectious diseases seems to be different in children with FSs in sub-Saharan Africa compared to the disease spectrum in the western world and management of those diseases such as malaria has to be taken into account when dealing with FSs in low-income countries (12). This door-to-door study in combination with complementary multisource data collection at hospitals and Mother and Child Health Centres (MCHs) was designed to ascertain the community-based prevalence of FSs, to describe the various clinical attributes and to assess special features of FSs in Tanzania.

543. Sudfeld CR, Duggan C, Aboud S, Kupka R, Manji KP, Kisenge R, Fawzi WW. Vitamin D status is associated with mortality, morbidity, and growth failure among a prospective cohort of HIV-infected and HIV-exposed Tanzanian infants. *The Journal of nutrition*. 2015; 145(1):121-7.

Background: Vitamin D is a potent immunomodulator, but its impact on morbidity and mortality among infants remains unclear. **Objective:** The objective of the study was to prospectively assess the association of vitamin D status with mortality, morbidity, and growth during the first 2 y of life. **Methods:** A prospective cohort of 253 HIV-infected and 948 HIV-exposed Tanzanian infants enrolled in a randomized trial of multivitamins (not including vitamin D) was studied. Serum 25-hydroxyvitamin D [25(OH)D] concentrations were measured at 5–7 wk of age and infants were followed at monthly clinic visits until 24 mo. Physicians performed a clinical exam every 3 mo or when an illness was noted. **Results:** Serum 25(OH)D concentrations were (means ± SDs) 18.6 ± 10.3 ng/mL and 18.1 ± 9.2 ng/mL for HIV-infected and HIV-exposed infants, respectively. Unexpectedly, serum 25(OH)D concentrations ≥30 ng/mL were

significantly associated with higher mortality as compared to the 20–29.9 ng/mL reference for HIV-infected (HR: 2.47; 95% CI: 1.13, 5.44; P = 0.02) and HIV-exposed (HR: 4.00; 95% CI: 1.67, 9.58; P < 0.01) infants after multivariate adjustment. We found no statistically significant association between 25(OH)D concentrations <10 ng/mL and mortality for HIV-infected (HR: 1.43; 95% CI: 0.74, 2.78; P = 0.29) and HIV-exposed (HR: 1.56; 95% CI: 0.60, 4.03; P = 0.36) infants. Among HIV-exposed infants, 25(OH)D concentrations ≥30 ng/mL were significantly associated with clinical [incidence ratio rate (IRR): 1.34; 95% CI: 1.06,1.70; P = 0.02] and confirmed (IRR: 1.71; 95% CI: 1.71; 1.15, 2.54; P < 0.01) malaria diagnoses, whereas concentrations of <10 ng/mL were associated with oral candidiasis (IRR: 1.47; 95% CI: 1.00–2.15; P = 0.046) and wasting (HR: 1.71; 95% CI: 1.20, 2.43; P < 0.01). **Conclusion:** The observational design of this study does not allow for causal interpretation; however, the results indicate a strong need for additional studies of vitamin D among HIV-infected and -exposed children, particularly in malaria-endemic settings.

544. **Sukums F, Mensah N, Mpembeni R, (et al.) "Promising adoption of an electronic clinical decision support system for antenatal and intrapartum care in rural primary healthcare facilities in sub-Saharan Africa: The QUALMAT experience."** ***International journal of medical informatics.*** **2015; 84(9): 647-657.**

Background: The QUALMAT project has successfully implemented an electronic clinical decision support system (eCDSS) for antenatal and intrapartum care in two sub-Saharan African countries. The system was introduced to facilitate adherence to clinical practice guidelines and to support decision making during client encounter to bridge the know-do gap of health workers. **Objectives:** This study aimed to describe health workers' acceptance and use of the eCDSS for maternal care in rural primary health care (PHC) facilities of Ghana and Tanzania and to identify factors affecting successful adoption of such a system. **Methods:** This longitudinal study was conducted in Lindi rural district in Tanzania and Kassena-Nankana district in Ghana between October 2011 and December 2013 employing mixed methods. The study population included healthcare workers who were involved in the provision of maternal care in six rural PHC facilities from one district in each country where the eCDSS was implemented. **Results:** All eCDSS users participated in the study with 61 and 56 participants at the midterm and

final assessment, respectively. After several rounds of user training and support the eCDSS has been successfully adopted and constantly used during patient care in antenatal clinics and maternity wards. The eCDSS was used in 71% (2703/3798) and 59% (14,189/24,204) of all ANC clients in Tanzania and Ghana respectively, while it was also used in 83% (1185/1427) and 67% (1435/2144) of all deliveries in Tanzania and in Ghana, respectively. Several barriers reported to hinder eCDSS use were related to individual users, tasks, technology, and organization attributes. **Conclusion:** Implementation of an eCDSS in resource-constrained PHC facilities in sub-Saharan Africa was successful and the health workers accepted and continuously used the system for maternal care. Facilitators for eCDSS use included sufficient training and regular support whereas the challenges to sustained use were unreliable power supply and perceived high workload. However our study also shows that most of the perceived challenges did not substantially hinder adoption and utilization of the eCDSS during patient care.

545. **Suleman AS. Compliance with and barriers to implementing protocol based sepsis care at the emergency medicine department, Muhimbili National Hospital. Master of Medicine (Emergency Medicine)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences.***

Background: The global burden of sepsis syndromes is significant, with over 8 million deaths annually. Protocol based care of sepsis patients has shown a substantial improvement in sepsis mortality, but studies have been primarily in high income countries. There is limited information on the feasibility of, compliance with, and barriers to sepsis guidelines in resource limited settings. **Objective:** To determine the compliance with the current sepsis protocol and to identify barriers associated with implementation of formal protocol based sepsis care among patients with sepsis at the Emergency Medicine Department (EMD)–Muhimbili National Hospital (MNH) in Dar Es Salaam, Tanzania. **Materials and methods:** This was a cross sectional descriptive study conducted in two phases. Phase I was an observational descriptive study of the management of a consecutive convenience sample of adult and paediatric patients presenting to EMD at MNH meeting criteria of severe sepsis/septic shock. A structured data sheet was used to record information on clinical presentation, diagnostic tests, timing of management, and

compliance with the current sepsis protocol. Phase II was a survey based study of all the doctors working in the EMD which utilized a structured self-administered questionnaire to eligibledoctors at all levels within the EMD to assess the barriers on evidence based practice. Data analysis was done by STATA version 13. Various proportions were obtained to determine the specific investigations, treatment used and challenges in implementing specific treatment elements, and proportions were calculated to determinecompliance with the sepsis protocol.Open ended questions in the Phase II of the study were analysed qualitatively. Ethical clearance was sought from the MUHAS Research and Publications Committee. **Results**: 150 of patients whopresented during the study met inclusion criteria for severe sepsis, with 17.3% meeting the criteria for septic shock. No patient received all components of the protocol within 1 hour, however, about 20% received antibiotics and within 1 hour and at least 1 septic workup done for them, meeting the minimal protocol compliance definition.The most commonly done investigation to determine the source of sepsis was chest xray (36.7%), and the least commonly done investigation was blood culture (0.7%). The most common challenges to protocol implementation reported by doctors, included; lack of diagnostic tools such as blood culture bottles (12.5%) and not having enough treatment options (25%). Suggestions to improve the use of guidelines included; increasing and updating treatment options (25%), increasing awareness of the protocol in the department (25%), and creation of a smartphone application (16.7%). **Conclusion and Recommendation:** Our study showed that among patients with severe sepsis and/or septic shock, none of the patients received all elements within the protocol. Challenges which led to failure to comply with the protocol were reported to be logistical as opposed to knowledge, which has been the case reported in literature. It is recommended to encourage more and more use of the local sepsis protocol to guide the management of patients.

546. **Sumner SA, Mercy AA, Motsa-Nzunza N, (et al.) "Prevalence of sexual violence against children and use of social services-seven countries, 2007-2013."** ***MMWR. Morbidity and mortality weekly report.*** **2015; 64(21): 565-569.**

A sexual violenceagainst child erodes the strong foundation that children require for leading healthy and productive lives. Globally, studies show that exposure to violence during childhood can increase vulnerability to a broad range of mental and physical

health problems, ranging from depression and unwanted pregnancy to cardiovascular disease, diabetes, and sexually transmitted diseases, including human immunodeficiency virus (HIV). Despite this, in many countries, the extent of sexual violence against children is unknown; estimates are needed to stimulate prevention and response efforts and to monitor progress. Consequently, CDC, as a member of the global public-private partnership known as Together for Girls, collaborated with Cambodia, Haiti, Kenya, Malawi, Swaziland, Tanzania, and Zimbabwe to conduct national household surveys of children and youth aged 13-24 years to measure the extent of violence against children. The lifetime prevalence of experiencing any form of sexual violence in childhood ranged from 4.4% among females in Cambodia to 37.6% among females in Swaziland, with prevalence in most countries greater than 25.0%. In most countries surveyed, the proportion ofvictims that received services, including health and child protective services, was ≤10.0%. Both prevention and response strategies for sexual violence are needed.

547. **Sungi S. Relationship between efavirenz steady state plasma concentration and immunologic, virologic and clinical treatment outcomes in pediatrics Inpatients in Dar es Salaam. Master of Clinical Pharmacology,** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

BACKGROUND: Antiretroviral treatment among children in Tanzania has not been optimized assign developed countries. Pharmacokinetics and pharmacodynamics of ARV drugs in children leads to variability in their plasma concentrations. This influences drug levels in their blood, and hence treatment outcome especially for drugs such as efavirenz (EFV) whose plasma concentration is directly related to treatment outcome. **OBJECTIVE:** To determine the plasma EFV concentration among Tanzanian pediatrics HIV-1 patients who have been on EFV-based highly active antiretroviral treatment (HAART) for at least six months and relate this concentration to clinical, immunological and virologic treatment responses. **METHODOLOGY:** This was a cross sectional study design in which a cohort of 145paediatric HIV patients who had been onEFV-based ARV regimens for at least six months was recruited. Data on demographics, ARV regimens in use, EFV dose and time of the last EFV dose was collected using structured questionnaires and checklists. Venous blood samples were drawn from participants for measurements of EFV plasma levels, viral load and CD4 T-cell count. Efavirenz plasma

levels were analyzed using reverse phase high-performance liquid chromatography. RESULTS: Efavirenz plasma concentration, virologic, immunologic and clinical responses were measured in 145 children aged between 5 and 15 (mean age10.83±2.75 years) weighing from 13Kg to 58Kg. Median (IQR) EFV concentration was 2.5633 (1.5044-4.5734)µg/mLwith a wide inter-patient variability (CV 133%). Over 30% of patients were found to have EFV levels >4µg/mL. Poor virologic response was observed in 70.8%, 20.8 % and 15.9% of patients with EFV levels <1µg/mL, 1-4µg/mL and >4µg/mL respectively. A therapeutic reference interval of between 1.3 and 3.5µg/mL was established for our Tanzanian paediatric patients. **CONCLUSION:** Efavirenz plasma concentration is associated with treatment response. A wide inter-patient variability and a large proportion of our patients with concentrations outside the therapeutic window suggest the need to review the current dosing scheme and employ extensive.

548. **Swai E, Mgaya H.Contraceptive Knowledge, Attitude and Practice among secondary school girls in Morogoro municipality.** ***3rd MUHAS Scientific Conference, 2015.***

Background: Sexual activity is prevalent among unmarried adolescents and there is a significant rate of unwanted pregnancy and abortions leading to health consequences and poor educational attainment. Sexually active adolescents require special information, counseling and services on family planning, however contraceptive (CP) knowledge and use among adolescents in schools is not well documented. **Objective:** To determine CP knowledge, attitude and practice among secondary school girls and existing barriers to its utilization. **Methodology:** Six non faiths based secondary schools were randomly selected, from which girls aged 14 to 19 years were randomly selected to participate. Data was collected by a self administered questionnaire then analyzed by SPSS computer software version 18. Univariate analysis was conducted to determine knowledge, attitude and practice of modern contraceptives. Chi-square test was applied to determine the association between social demographic characters, knowledge, attitude and contraceptive practice. P value <0.05 was significant. **Results:** A total of 386 girls were interviewed. Fifty eight percent of respondents had good knowledge on modern CP, 52% had positive attitude towards modern CP and 45% were sexually active. Among sexually active 41% had used modern CP. CP use was significantly associated with increasing age

(29%) while fear of CP side effect was the most common reason for not using modern CP (57%). **Conclusion:** This study has shown above average level of knowledge and positive attitude toward modern contraception among school girls. However CP practice among this group is low as they face wide range of barriers. Further studies on the parent's attitude towards adolescent contraceptive use may narrow the observed gap.

549. **Sztam K, Liu E, Manji K, Kupka R. (et al) Diarrhea in HIV-Exposed Tanzanian Infants Is Reduced With Maternal Antiretroviral Therapy. *The FASEB Journal*. 2015; *29*(1): 898-47.**

Background: Use of maternal antiretroviral therapy (ART) is associated with higher survival among HIV-exposed children, but data on its effect on child diarrhea, a major cause of morbidity, are limited. **Objective**: To evaluate risk factors for diarrhea in HIV-exposed infants in peri-urban Dar es Salaam, Tanzania. **Methods:** HIV-exposed infants were enrolled at age 6 weeks and followed for 24 months. Mothers kept written logs of monthly diarrhea episodes. Maternal and child factors were analyzed using generalizing estimating equations, including both time-varying maternal ART use and child HIV infection on reports of subsequent diarrhea. **Results:** 2387 infants were enrolled from 2004-08 in Dar es Salaam. With ART rollout, 429 mothers initiated ART during pregnancy and 151 initiated ART postpartum. 1814 diarrhea episodes were recorded. After controlling for maternal and child factors, maternal ART initiated during pregnancy was associated with a 21% reduction in subsequent diarrhea in children (RR 0.79, 95%CI 0.68-0.91). Using maternal ART at any time reduced diarrhea risk by 23% (RR 0.77, 95%CI 0.67-0.89). Other factors independently associated with diarrhea included HIV infection [RR 1.29 (1.10-1.50)], exclusive breastfeeding [RR 0.67 (0.56-0.80)] and higher spending on food [RR 0.67 (0.59-0.77)]. **Conclusions:** ART use in mothers reduces risk of diarrhea in HIV-exposed children. Future studies should examine the effect of maternal ART on other important childhood morbidities for HIV-exposed children. **Support:** NIH R01HD043688-01, K24HD058795

550. **Tanaka N, Horiuchi S, Shimpuku Y, Leshabari S. Career development expectations and challenges of midwives in Urban Tanzania: a preliminary study. *BMC nursing*. 2015; 14 (1): 1.**

Background .Approaches to addressing the shortage of midwives is a great need especially in Sub-Saharan Africa including Tanzania. The midwifery shortage in Tanzania consists of two major causes; the first is the shortage of pre-service nursing training and the second is the low rate of retention as it is difficult to sustain midwives' career motivations. Lack of opportunities for career development, is one of the most related problems to keep midwives motivated. Continuing education as an approach to career development can heighten midwives' motivation and cultivate more skilled midwives who can educate other midwives or students and who could raise the status of midwives. Effective continuing education is ongoing, interactive, contextually relevant and based on needs assessment, however there is very limited research that describes Tanzanian midwives perspective of expectations for career development; hence this research is significant for revealing important and meaningful professional desires of midwives in Tanzania. **Methods:** This was a preliminary qualitative study, using snowball sampling to recruit 16 midwives in Tanzania. The researchers used a semi-structured interview including probing questions with both a focus group and several individuals. The data were collected from July to December 2013 and coded into categories and sub-categories. **Results:** There were 14 midwives in the focus group interview and two midwives in the individual interviews. Through data analysis, four major categories (with subcategories) emerged: (1) motivation for learning (to achieve the MDGs, and to raise reproductive health), (2) knowledge is power (to provide good practice based on knowledge, to be a role model, knowledge gives higher position and courage, and knowledge enables one to approach to the government), (3) there is no end to learning (hunger for learning, and ripple effect). **Conclusions:** From findings, four major categories plainly showed midwives' desire for learning; however they experienced a number of barriers to access further education. Continuing education is one of the most important and effective ways to cultivate and retain midwives. In order to respond to the midwives expectations and challenges to overcome the barriers inherent in providing more continuing education, it will be necessary to increase accessible opportunities for career development in Tanzania.

551. **Tarimo DS, Jani B, Killewo J. Management of fever among under-fives and utility of malaria rapid diagnostic test under reduced malaria burden in Rufiji District,**

Southeastern Tanzania. ***Asian Pacific Journal of Tropical Disease*****. 2015 Nov 30; 5(11):862-8.**

Objective: To investigate case management of fever among under-fives, performance and utility of malaria rapid diagnostic test (mRDT) under reduced malaria burden in Rufiji District, Southeastern Tanzania. **Methods:** A quantitative cross sectional study was conducted at primary health facilities in Rufiji District from April to May 2012. Information on socio-demographic characteristics, history and duration of fever, fever measurement, clinical diagnosis and drugs prescribed were recorded. Parasitological malaria confirmation was done by mRDT and microscopy. Performance of mRDT and utility of mRDT results to guide on the management of malarial and non-malarial fevers were assessed. **Results:** Of the 466 under-fives with fever, 111 (23.8%) were mRDT positive and 100 (21.5%) were microscopically positive for malaria. Sensitivity and specificity of mRDT were 90% [95% confidence interval (CI): 82.6%–94.5%] and 94.3% (95% CI: 91.4%–96.2%) respectively; overall diagnostic accuracy was 93.3% (95% CI: 91.1%–95.6%). A total of 130 (28.5%) under-fives received an ant malarial. Among them, 109 (83.8%) were mRDT positive while 21 (16.2%) were negative. Of the 100 under-fives with microscopic parasitaemia, 34 had counts > 200 000/μL an indication for quinine but only 5/34 (14.7%) received quinine prescription. Five under-fives with parasitaemia > 200 000/μL had negative mRDT results. Being mRDT negative was significantly associated with receipt of an antibiotic prescription ($\chi 2 = 162.2$, $P < 0.001$). **Conclusions:** Use of mRDT reduced unnecessary ant malarial use by 71.5%. However, this had the potential for over prescribing an antibiotic for non-malarial fevers. The diagnostic performance of mRDT was still high despite decline in malaria burden.

552. **Tarimo DS. Community Knowledge and Perceived Effectiveness of Interventions to Reduce Malaria Implications for Sustained Use of Malaria Interventions in Rufiji District, Southeastern Tanzania.** ***International quarterly of community health education*****. 2015; 35(4):335-47.**

Insecticides treated-nets (ITNs) and artemether-lumefantrine (ALu), crucial for malaria elimination, depend on perceived effectiveness in reducing malarial fevers. We examined community knowledge and perceived effectiveness of ITNs and ALu for reducing

malaria in Rufiji district. Heads of households were interviewed on causes of fever in underfives, fever history, and antimalarial use during the last 2 weeks, perceived effectiveness of, and willingness to continue using ALu and ITNs. A total of 1,885 respondents were interviewed, a majority (88.2%) females. Illnesses with fever (malaria—76.1% and respiratory conditions—58.9%) were major health problems. There was a very high recognition of fever as malaria symptom (95.1%). There were mixed perceptions on effectiveness of ALu and ITNs: ALu (52.8%) and on ITNs as highly effective (48.1%). Both ALu and ITNs were judged partially effective. Reorientation of social marketing to increase demand for ALu and ITNs for malaria control consolidation is crucial.

553. **Tarimo E, Kulane A, Bakari M, Kohi T, Sandstrom E, Mhalu F. The relevance of social behaviour methodologies for HIV Vaccine Immunogenicity Study (HIVIS-03), a Phase I/II HIV vaccine trial in Tanzania.** ***3rd MUHAS Scientific Conference,*** **2015.**

Background: As HIV continues to devastate low-income countries, efforts to search for an effective preventive HIV vaccine are crucial. Tanzania, in collaboration with international partners, is one of low-income countries involved in conducting Phase I and or II HIV vaccine trials. Along with immunological investigations, it was deemed important to explore knowledge and experiences of the participants before, during and after completion of a trial. We describe a series of key results from socio-behavioural studies in the HIV Vaccine Immunogenicity Study (HIVIS-03), a Phase I/II HIV vaccine trial. **Methods:** Quantitative and qualitative studies were carried out among the participants and volunteers who were considered for participation or participated in the HIVIS-03 trial in Dar es Salaam, Tanzania. **Results:** The quantitative results showed that 61% of potential participants would volunteer for the trial. Personal decision and expectation of obtaining protection against HIV infection were associated with the willingness to volunteer. The qualitative findings revealed impediments to participation in the trial as the negative influence by sexual partners, friends, family members, relatives or parents (significant others); and fear of vaccine side effects. Health care providers (Doctors/Surgeons/Nurses) who were not connected to the trial were reported to discourage the volunteers who took part in the trial. Despite the negative comments, volunteers in the trial managed to stay on until the end of the trial as a result of personal

decisions and trial-related interventions. Furthermore, the experienced changes of social harm and sexual behaviour two years after the trial brought new insights to the trial implementers. **Conclusion:** Individual's decision, opinions of significant others, and the capacity to deal with social harm influenced recruitment and retention in participating in an HIV vaccine trial. These issues are captured using socio-behavioural methodologies thus contributing to knowledge that would not otherwise be available and accessible to trial implementers.

554. **Tarimo RN. Comparison between Provider Gestalt, Brose low Tape and Advanced Pediatric Life Support Formula in Estimating the Weight of Children Presenting to the Emergency Medicine Department at Muhimbili National Hospital. Master of Medicine (Emergency Medicine Degree)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Most medical therapies for children are administered based on weight. Measuring scales are not always available and may delay care for very ill children. Rapid means of estimating weight are therefore clinically important. Provider gestalt is an option, but other methods based on age, height and length including the Advanced Pediatric Life Support (APLS) formula and the Brose low tape are also available. Most of these weight estimation methods have been developed and tested in high resource settings. There is very limited regional data to show the most accurate method in estimating weight of children in Tanzania. **Objective:** To determine the accuracy of the Brose low tape, APLS formula, and provider gestalt in estimating the weight of children presenting to the Emergency Medicine Department (EMD) at Muhimbili National Hospital (MNH). **Methodology:** This is descriptive cross sectional study of a consecutive convenience sample of children aged zero to ten years presenting to the EMD - MNH and requiring weight estimation as part of their clinical care. A data sheet was used to record an estimated weight obtained through the Brose low tape, APLS formula, and provider gestalt, while the measured weight was obtained by a calibrated measuring scale. Correlation coefficient and Bland Altman analysis was used to estimate the accuracy of these methods in determining the weight of children. A one-way Analysis of Variance (ANOVA) was used to assess whether provider's qualification and experience had an effect on the weight estimation accuracy. **Results:** We enrolled a total

of 105 children, the male to female ratio was 1.5:1 and median age was 1.67 years (IQR=2.88 years). Forty one point eighty percent (41.8%) of children were first-born within their families, while 16.3% of the children were the 4th born and above. 80% of the children were cared for primarily by both parents. Fifty seven point one percent (57.1%) of children had never been admitted to hospital before, while 25.1% had 1 previous admission. Using measured weight by calibrated scale as a gold standard, the Pearson's correlation coefficient for weight estimated by Brose low tape, APLS formula and provider gestalt was 0.939($p<0.001$), 0.857($p<0.001$), and 0.869($p<0.001$), respectively. The differences among the three methods was significant for (Brose low vs. APLS P=0.0048) and (Brose low vs. Providers P=0.042) but not significantly different between (APLS formula vs. provider's gestalt P=0.76). Brose low tape and APLS formula tend to overestimate weight with mean percent error of 9.5% and 10.5, respectively. Using the Brose low tape, 46.7% were within 10% of the measured weight compared to 41.2% using the APLS formula. Provider's qualification and/or experience were not shown to have a significant effect on pediatric weight estimation. Only 31.4% of weight estimates based on provider gestalt were within 10% of measured weight. **Conclusion:** The provider gestalt, Brose low tape and Advanced Pediatric Life Support formula had a strong correlation in estimating the weight of children presenting to the Emergency Medicine Department at Muhimbili National Hospital. Despite a strong correlation, the Brose low tape and APLS methods show an overestimation of the weight of the children and provider gestalt shows an underestimate. Further studies with larger sample sizes are needed to validate these methods in pediatric population of Tanzania.

555. Tellevik MG, Moyo S, Blomberg B, Hjøllo T, Maselle SY, Langeland N, Hanevik K. Prevalence of Cryptosporidium parvum/hominis, Entamoeba histolytica and Giardia lamblia among Young Children with and without Diarrhea in Dar es Salaam, Tanzania. *PLoS Negl Trop Dis*. 2015; 9(10):e0004125.

Background: Although enter parasites are common causes of diarrheal illness, few studies have been performed among children in Tanzania. This study aimed to investigate the prevalence of Cryptosporidium parvum/hominis, Entamoeba histolytica and Giardia lamblia among young children in Dar es Salaam, Tanzania, and identify risk factors for infection. **Methodology/Principal Findings:** We performed an unmatched case-control

study among children < 2 years of age in Dar es Salaam, recruited from August 2010 to July 2011. Detection and identification of protozoans were done by PCR techniques on DNA from stool specimens from 701 cases of children admitted due to diarrhea at the three study hospitals, and 558 controls of children with no history of diarrhea during the last month prior to enrollment. The prevalence of C. parvum/hominis was 10.4% (84.7% C. hominis), and that of G. lamblia 4.6%. E. histolytica was not detected. The prevalence of Cryptosporidium was significantly higher in cases (16.3%) than in controls (3.1%; P < 0.001; OR = 6.2; 95% CI: 3.7–10.4). G. lamblia was significantly more prevalent in controls (6.1%) than in cases (3.4%; P = 0.027; OR = 1.8; 95% CI: 1.1–3.1). Cryptosporidium infection was found more often in HIV-positive (24.2%) than in HIV-negative children (3.9%; P < 0.001; OR = 7.9; 95% CI: 3.1–20.5), and was also associated with rainfall (P < 0.001; OR = 2.41; 95% CI: 1.5–3.8). Among cases, stunted children had significantly higher risk of being infected with Cryptosporidium (P = 0.011; OR = 2.12; 95% CI: 1.2–3.8). G. lamblia infection was more prevalent in the cool season (P = 0.004; OR = 2.2; 95% CI: 1.3–3.8), and more frequent among cases aged > 12 months (P = 0.003; OR = 3.5; 95% CI: 1.5–7.8). Among children aged 7–12 months, those who were breastfed had lower prevalence of G. lamblia infection than those who had been weaned (P = 0.012). **Conclusions:** Cryptosporidium infection is common among young Tanzanian children with diarrhea, particularly those living with HIV, and infection is more frequent during the rainy season. G. lamblia is frequently implicated in asymptomatic infections, but rarely causes overt diarrheal illness, and its prevalence increases with age.

556. **Tengio RB. Magnitude of Animal Bites and Determinants of Patient Delay in Initiation of Rabies Post Exposure Prophylaxis in Kilimanjaro Region, Tanzania. Master of Medicine (Community Health*) Dissertation 2015. Muhimbili University of Health and Allied Science.***

Background: Animal bite is a serious public health problem worldwide which could expose humans to rabies disease. Timely initiation of rabies post exposure prophylaxis is therefore critical to prevention of disease in persons exposed to rabid animals. High incidence of animal bites has been reported in Tanzania but there is insufficient information about promptness in accessing rabies post exposure prophylaxis. **Objectives:**

This study aimed at describing the magnitude of animal bites and identifying determinants of patient delay in initiation of rabies post exposure prophylaxis in Kilimanjaro region, Tanzania. **Material and methods:** A cross-sectional survey was conducted at the hospitals and communities in five districts in Kilimanjaro region from February to March 2015 using both quantitative and qualitative approach to collect data from study participants. Qualitative component was added to obtain more information on socio-cultural which would not be captured by quantitative part alone. Quantitative data was collected using a pretested, semi> structured questionnaire administered to 180 animal bite cases seen at anti-rabies vaccination centers. Qualitative data was obtained from both health facilities and communities through in—depth interviews and focus group discussions. Analysis of quantitative data was done using Statistical Package for Social Sciences software. Content analysis was used to analyze qualitative data. Results: Out of 180 cases seen, 56.7% were male. Age group 5 to 14 was the most affected group with (32%) of cases. Majority of injuries (93.9%) were caused by dogs of which 80.6% were street dogs. Other animals were cats (6.1%) Category Ill bites were seen in 48.3% patients but none of them received rabies immunoglobulin. Only 29.4% of respondents washed their wound with soap and water immediately after bite incident while (35.6%) used local treatment. Delayed initiation of post exposure prophylaxis was found among l00/ 180 (55.6%) of respondents. Awareness about timely vaccination ($p< 0.001$) and patient age ($p=0.02$) were the main factors associated with delays. Awareness about timely vaccination was the only determinant of delays (Adjusted odds ratio = 13.2, CI (3.6-48.8); $p< 0.001$). Qualitative results shows that cost of treatment and unavailability of anti-rabies vaccine in many public health facilities to be the main factors influencing delay in initiation of post exposure prophylaxis. Other factors reported to influence delays include; perceived causes of rabies; perceived treatment of animal bites, health care seeking process and decision making in health care seeking. **Conclusion:** Animal bites are a public health concem in Kilimanjaro. The proportion of those who delay to seek treatment is high and it is mainly attributed to limited awareness about the importance of timely prophylaxis as well as high costs of treatment. The study recommends that local government authorities, Public health and animal health

stakeholders, to step up initiatives to create awareness of rabies among communities and strengthen strategies to control rabies.

557. **Tibalinda P, Manyanga V, Kaale E, Risha P. The Quality of Circulating Paracetamol in Our Local Market. *3rd MUHAS Scientific Conference,* 2015.**

Background: The content uniformity and dissolution are among the factors to be considered for the quality of medicines. The dissolution tells the amount of drug which can be released in vitro wheras content uniformity the variation of the drug amount in the formulated products. **Objective**: A survey of the local market to assess the quality of paracetamol tablets **Methodology**: A preliminary sampling was performed on the local market followed by risk based sampling approach. Dosage content uniformity and Dissolution test as described in the USP and BP were applied respectively. Twenty batches of locally produced paracetamol were subjected to Dissolution test, whereas seven batches were assessed for the content uniformity. **Results**: Twelve batches (60%) passed the dissolution test. Among the batches with poor dissolution, seven (87.5%) were loosely packed in plastic containers of 1000‘s. None (0%) passed the test for content uniformity as according to the USP. **Conclusion**: The poor content uniformity may have been attributed by poor formulation with poor mixing of excipients and active ingredients which might have been brought by poor distribution of particles. The poor dissolution may have been brought by lack of optimized formulations.

558. **Tibalinda P, Manyanga V, Kaale E. The Possibility of Reformulating Efavirenz in Reduced Tablet Core Weight. *3rd MUHAS Scientific Conference, 2015.***

Background: Efavirenz has poor solubility and high permeability (Class II pharmaceutical substance). It is poorly water soluble drug (10 g/ml) with 40-45% bioavailability. It is a non-nucleoside reverse transcriptase inhibitor (NNRTI) used in the current first line regimens recommended by the WHO for the management of HIV/AIDs in affected individuals. **Objectives:** The available Efavirenz 600 mg tablets on the market have a core weight of 1200 mg per tablet. Excipients are available in 50% and the rest portion is occupied by the Efavirenz (API). This brings to high cost of manufacturing of the product.The conventional approach of manufacturing the drug with an inclusion of optimized amounts of surfactant (Sodium Lauryl Sulphate) and other excipients has been

shown to reduce the tablet core weight by 25% (400 mg) without interfering with the quality of the drug. **Methodology:** Efavirenz tablets were developed by a conventional approach through a wet granulation method. The amounts of excipients were optimized through a number of formulation trials. The formulations were evaluated basing on assay, dissolution, disintegration time and weight variation results. **Results:** The final optimized formulation ofEfavirenz had an average core weight of 802.6 mg, assay 98.71% (92-110%), dissolution 98.71 (<70% in 45 minutes at 37 °C), disintegration time 4-5 minutes (<15 minutes at 37 °C) and the weight variation, rsd 0.999% (<5%).**Conclusion:** The reformulation of efavirenz tablets to reduced core weight by 25% has been shown to be possible. This approach will cut off the production cost by 25%, hence reduce the market price of the product.

559. **Tran OC, Bruce RD, Masao F, Ubuguyu O, Sabuni N, Mbwambo J, Lambdin BH. Implementation and operational research: linkage to care among methadone clients living with HIV in Dar es Salaam, Tanzania.** ***JAIDS Journal of Acquired Immune Deficiency Syndromes.*** **2015; 69(2):e43-8.**

Background: The first methadone maintenance treatment clinic in Tanzania was launched in February 2011 to address an emerging HIV epidemic among people who inject drugs. We conducted a retrospective cohort study to understand factors associated with linkage to HIV care and explore how a methadone maintenance treatment clinic can serve as a platform for integrated HIV care and treatment. **Methods:** This study used routine programmatic and clinical data on clients enrolled in methadone at Muhimbili National Hospital from February 2011 to January 2013. Multivariable proportional hazards regression model was used to examine time to initial CD4 count. **Results:** Final analyses included 148 HIV-positive clients, contributing 31.7 person-years. At 30, 60, and 90 days, the probability of CD4 screening was 40% [95% confidence interval (CI): 32% to 48%], 55% (95% CI: 47% to 63%), and 63% (95% CI: 55% to 71%), respectively. Clients receiving high methadone doses (≥85 mg/d) [adjusted hazard ratio (aHR): 1.68, 95% CI: 1.03 to 2.74] had higher likelihood of CD4 screening than those receiving low doses (<85 mg/d). Clients with primary education or lower (aHR: 1.62, 95% CI: 1.05 to 2.51) and self-reported poor health (aHR: 1.96, 95% CI: 1.09 to 3.51) were also more likely to obtain CD4 counts. Clients with criminal arrest history (aHR:

0.56, 95% CI: 0.37 to 0.85]) were less likely to be linked to care. Among 17 antiretroviral therapy eligible clients (CD4 ≤ 200), 12 (71%) initiated treatment, of which 7 (41%) initiated within 90 days. **Conclusions:** Levels of CD4 screening and antiretroviral therapy initiation were similar to Sub-Saharan programs caring primarily for people who do not inject drugs. Adequate methadone dosing is important in retaining clients to maximize HIV treatment benefits and allow for successful linkage to services.

560. **Tungu AM, Bråtveit M, Mamuya SH, Moen BE. Reduction in respiratory symptoms among cement workers: a follow-up study. *Occupational Medicine*. 2015; 65(1):57-60.**

Background: Several studies have reported associations between cement dust exposure and adverse respiratory health effects, but there are few follow-up studies and no studies of respiratory health effects following dust control measures. **Aims**: To assess changes in respiratory health among cement workers and unexposed controls after 1 year in a factory implementing a health and safety campaign with the main aim to increase use of personal protective equipment. Earlier the factory had made technical improvements which had reduced dust levels. **Methods:** Respiratory questionnaire interviews and personal total dust exposure assessments were conducted in 2010 and 2011. **Results:** A total of 171 cement workers and 98 controls participated in the study in 2010. The prevalence of cough, cough with sputum, dyspnoea and wheeze among the 134 exposed workers assessed at follow-up in 2011 was significantly lower than in 2010, but not among 63 controls followed up in 2011. Total dust exposure levels among exposed workers did not differ between 2010 and 2011. **Conclusions:** The prevalence of respiratory symptoms among cement workers was reduced after 1 year of follow-up following an intervention campaign to improve use of personal protective equipment.

561. **Urasa WA. Determinants of non-adherence to combination prophylaxis regimen among HIV infected pregnant women attending rch clinic at kibaha district hospital. Master of Public Health, *Dissertation 2015. Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

Background: Adherence to antiretroviral therapy (ART) is central to a successful prevention of mother- to- child transmission of HIV programme by ensuring optimal viral

suppression. However, a high level of adherence to antiretroviral drugs has remained a major challenge to achieving maximal benefit from its use in pregnancy. **Objectives:** To identify the level and factors of non-adherence to combination prophylaxis regimen (CPR) during pregnancy among pregnant women attending antenatal services at Kibaha district Hospital. **Method:** The study was cross-sectional, conducted at Kibaha district hospital, involving 362 HIV pregnant women. Data were collected through structured interviews and were analyzed using computer software, Statistical Package for Social Science (SPSS). Results: The study indicated that 22.4% of the respondents were non-adherent to CPR. Main reasons for missing ARV drugs were forgetfulness (52.3%) and travelling without pills (35.8%). Respondents employed by government had a significantly reduced odds of non-adherence to CPR (OR=0.3, 95% CI [0.1-0.8]). Although not significant, respondents who felt waiting time for service at the health facility was long, had reduced odds of non-adherence (OR=0.6, 95% CI [0.3 - 1.3]) **Conclusion:** Overall, 22.4% of pregnant women attending RCH in Kibaha were non-adherent to CPR. Therefore, regular ART adherence education and counseling should be priority strategy for improving adherence to ART among HIV infected pregnant women in Coast region.

562. Urassa D, LeFevre A, George A. Influence of age on community health worker's knowledge and service provision for maternal, newborn, and child health in Morogoro region, Tanzania. *East African Journal of Public Health*. 2015; *12*(1): 964-974.

Background: Developing countries with increasing service needs and shortage of skilled health workers, governments are investing in community health worker (CHW) programs to address rural health needs. With current renewed interest in CHWs in Tanzania, questions have arisen surrounding the age group composition of this health worker cadre. This study investigated age differences in characteristics, knowledge, and service delivery among CHWs working on maternal, newborn, and child health (MNCH) in rural Tanzania. **Methods:** A quantitative survey was administered to all CHWs that received training from December 2012 to July 2013 in five administrative districts of Morogoro Region, Tanzania where the community integrated MNCH program is being

implemented. Program monitoring and evaluation forms provided detailed records of service delivery during CHW home visits. Data on CHW socio-demographic characteristics, knowledge, and service delivery was analyzed through bi- and multivariate analyses. Composite scores were generated across ten knowledge domains: pregnancy, postpartum, newborn, and child care, family planning, injury and infection prevention, malaria, nutrition, and HIV. Ordered logit models were used to estimate relationships between knowledge scores and predictor variables. **Results:** Among ninety seven percent of the eligible 238 Community Health Workers interviewed, the highest percentage (37%) was in the age group above 35 years. A variation in gender was not significant among different age groups. However there was a statistically significant difference ($p<0.05$) in marital status, education levels, use of English language, number of dependants, and income from agriculture among CHWs of different age groups. No Significant differences by age group in MNCH knowledge were observed even after controlling for education, gender, date of training, income, and socio-economic status. There was no significant difference in most CHW service provision across different age groups except for ability to working with other CHW programs and duration of working as CHW, of which both proportion and mean respectively were increasing as the age increases ($p<0.05$). **Conclusions:** This study showed that apart from some slight differences, there was no statistical difference in CHW knowledge retention, and service provision for MNCH across different age groups. However there was a significant difference in their demographic characteristics that may affect guidelines defining CHWs recruitment and retentions criteria in Tanzania. Besides other criteria for CHW recruitment in rural areas age factor should also be considered to ensure retention of this carder. Further analysis on other social determinants and comparison with qualitative research is indicated to better understand the implications of the social profile of CHWs on the effectiveness and sustainability of the program.

563. Urassa D, LeFevre A, George A. "Influence of age on community health worker's knowledge and service provision for maternal, newborn, and child health in Morogoro region, Tanzania." ***East African Journal of Public Health.*** **2015; 2(1): 964-974.**

Background: Developing countries with increasing service needs and shortage of skilled health workers, governments are investing in community health worker (CHW) programs to address rural health needs. With current renewed interest in CHWs in Tanzania, questions have arisen surrounding the age group composition of this health worker cadre. This study investigated age differences in characteristics, knowledge, and service delivery among CHWs working on maternal, newborn, and child health (MNCH) in rural Tanzania. **Methods:** A quantitative survey was administered to all CHWs that received training from December 2012 to July 2013 in five administrative districts of Morogoro Region, Tanzania where the community integrated MNCH program is being implemented. Program monitoring and evaluation forms provided detailed records of service delivery during CHW home visits. Data on CHW socio-demographic characteristics, knowledge, and service delivery was analyzed through bi- and multivariate analyses. Composite scores were generated across ten knowledge domains: pregnancy, postpartum, newborn, and child care, family planning, injury and infection prevention, malaria, nutrition, and HIV. Ordered logit models were used to estimate relationships between knowledge scores and predictor variables. **Results:** Among ninety seven percent of the eligible 238 Community Health Workers interviewed, the highest percentage (37%) was in the age group above 35 years. A variation in gender was not significant among different age groups. However there was a statistically significant difference ($p<0.05$) in marital status, education levels, use of English language, number of dependants, and income from agriculture among CHWs of different age groups. No Significant differences by age group in MNCH knowledge were observed even after controlling for education, gender, date of training, income, and socio-economic status. There was no significant difference in most CHW service provision across different age groups except for ability to working with other CHW programs and duration of working as CHW, of which both proportion and mean respectively were increasing as the age increases ($p<0.05$). **Conclusions:** This study showed that apart from some slight differences, there was no statistical difference in CHW knowledge retention, and service provision for MNCH across different age groups. However there was a significant difference in their demographic characteristics that may affect guidelines defining CHWs recruitment and retentions criteria in Tanzania. Besides other criteria for CHW

recruitment in rural areas age factor should also be considered to ensure retention of this carder. Further analysis on other social determinants and comparison with qualitative research is indicated to better understand the implications of the social profile of CHWs on the effectiveness and sustainability of the program.

564. Urio F, Lyimo M, Makani J. Description of F cells in Sickle Cell Anemia in Tanzania. *3rd MUHAS Scientific Conference, 2015.*

Background: High levels of HbF are associated with a decrease in disease severity in sickle cell anemia (SCA). The measured HbF is contained in F cells; a good correlation between the 2 has been demonstrated. HbF and F cells levels are highly variable between healthy individuals; this is amplified in SCA patients. There is limited information on F-cells in SCA in Tanzania. **Objective:** The objective was to determine F cell levels in SCA by exploring the association between HbF and F cells and determining the amount of HbF/ F cell. **Method:** The study was from November 2013 to March 2014 at Muhimbili National Hospital. SCA patients aged ≥ 5 years who were not on hydroxyurea were recruited. HbF levels were measured by HPLC and F cells by Flow cytometry using a mouse monoclonal antibody to HbF. The amount of HbF/Fcell was obtained using the formula HbF × MCH ÷ F cells. **Results:** 100 individuals (age 9 - 60 years) were recruited consisting of 84 SCA (36 Male; mean age 39.8yrs) and 16 non- SCA (HbAA) (9 Male; 30.4yrs). Median HbF for SCA was 8.8 %(IQR 6.5- 11.4) and AA was 1.05%(IQR 0.3 - 1.2).Median F-cell for SCA and non-SCA was 38.09%(IQR 29.31 - 47.83)and 3.93(IQR 2.5 - 6.7) respectively.95% of HbSS had F cell > 10% but only three patients (3.6%) had RBC containing ≥ 10pg HbF. The R2 for the association between HbF and F cell was 0.92. **Conclusion:** We confirm that HbF and F-cell were high in individuals with SCA compared to AA in Tanzania. There is a positive correlation between the amount of HbF and F cells. A critical level of intracellular HbF of ≥ 10pg is thought to inhibit HbS polymer formation, hence a vital determinant of disease-severity than the total number of F cells or HbF levels. This study does not provide a spread of the amount of HbF per F cell.

565. **Urrio CM. Lipid Profile in Pre-Eclamptic Women at Muhimbili National Hospital. Master MSc (Biochemistry)** ***Dissertation 2015. Muhimbili University of Health and Allied Sciences*****.**

Introduction: In normal pregnancy there is a normal increase in plasma lipids resulting into physiological hyperlipidaemia (Diareme et al., 2009). In complicated pregnancy, there is a defect in the mechanism of adjusting physiological hyperlipidaemia and thus resulting into dyslipidaemia (Setareh et al., 2009). The dyslipidemia can be measured in the laboratory by changes in lipid indices: Total cholesterol (Chol), Triglycerides (TG), High Density Lipoprotein Cholesterol (HDL-C), Low Density Lipoprotein Cholesterol (LDL-C) and Very Low Density Lipoprotein Cholesterol (VLDL-C) (Diareme et al., 2009). It has been suggested that raised LDL-C may contribute to endothelial dysfunction in pre-eclampsia, a specific multi system disorder of pregnancy characterized by hypertension and proteinuria. The etiology of pre-eclampsia is still unknown. At present, the most popular hypothesis is the theory of oxidative stress. Abnormal lipid profiles may have a role in the promotion of oxidative stress and vascular dysfunction that is seen in pre-eclampsia (Gohil et al., 2011). The objective of this study was to compare lipid profiles in pre eclamptic and non- pre eclamptic women and to find out if measuring lipid indeces can be used as biochemical markers in pre-eclampsia **Methods:** The study was carried out on 25 non pre-eclamptic pregnant women attending the antenatal clinic and 25 pre eclamptic pregnant women admitted in ward 35 at the Obstetrics and Gynecology ward of Muhimbili National Hospital in January 2015. Non fasting blood samples were taken from each woman in the two groups and assayed for Triglyceride, HDL-Cholesterol and LDL-Cholesterol using the Architect 4100 Biochemical Analyzer. Data was analyzed using SPSS for Windows (version 20.0) and test for significance was done using the student t-test and one way ANOVA. **Results:** The data showed significant ($P<0.05$) increase in Triglycerides and LDL-C levels in pre-eclamptic women as compared to non pre-eclamptic women. HDL-C levels did not differ significantly in the two groups. In pre-eclamptic women, increase in Triglycerides and LDL-C was associated with increase in BMI. **Conclusion:** The data showed that dyslipidemia in the form of hypertriglyceridemia and increased LDL-C levels are significantly evident in pre-eclampsia. The data also shows that HDL-C levels do not differ significantly in non pre-

eclamptic women and in pre-eclamptic women. **Recommendations:** It is recommended to measure serum triglyceride and LDL-C levels as a screening test for pre-eclampsia. It is recommended that further studies be done at MNH to examine serum lipid changes in pregnancy and its association with pre-eclampsia/eclampsia

566. **Uys LR, Awases M, Kamanzi D. "Review of nursing and midwifery programmes in Africa."** ***Africa Journal of Nursing and Midwifery.*** **2015; 8(1): 3-14.**

This article describes an action research project to develop and test a process of internal and external review of health professionals' education in Africa, with special reference to nursing. The objectives were to develop and validate the process and instrument used to establish the current benchmark of nursing education in Africa. This article reports only on the internal and external evaluation of some nursing programmes in Africa. The setting was the African Region of the World Health Organization, involving different nursing schools in the different cycles of the process. Guidelines for internal and external review of nursing schools and programmes were drafted, tested and refined through a process of consultation, workshops, testing and amending. The last test involved the internal review of five African nursing schools and the external review of four of these. The external reviews led to seven changes being made to the process and to the instrument to enhance clarity and quality of information gathered. The external reviewers evaluated the process concluding that both the schools and individuals benefited from their involvement in the process. Having processes and structures in place to make the review of health professional education programmes possible should enhance regional benchmarking and local quality improvement.

567. **Vedasto VB. Prevalence of malocclusions and associated factors among school-going children with disabilities in Dar es salaam, Tanzania. Master of Dentistry (Pediatric Dentistry)** ***Dissertation 2015. Muhimbili University of Health & Allied Sciences.***

Background- Proper occlusion is an important component of overall oral health of the child, since bad occlusion (malocclusion) is associated with oral diseases like dental caries, periodontal diseases, temporal-mandibular disorders and predisposes an individual to dental trauma, the situation becomes complicated by an individual's disabilities.

Children with disabilities are not exceptional, when it comes to having malocclusions. Thus, paying attention to malocclusion will lead to an improvement in quality of life of these children. **Aim** – The overall objective of this study was to determine the occurrence of malocclusions and associated factors among school-going children with disabilities in Dar es Salaam, Tanzania. Materials and methods- A cross sectional survey of 384 children from Temeke, Kinondoni and Ilala municipalities primary schools for disabled children in Dar es Salaam region, was done from December 2014 to February 2015. The study involved children from 6-17 years of age. Selected children were clinically examined for malocclusions using a criteria described by WHO (1997), with slight modifications. Interview was conducted to parents/guardians of respective school children using structured questionnaires, these included socio-demographic details and questions inquiring the factors associated with malocclusions. Data entry and analysis was done using SPSS version 20.0. Frequency distributions were analysed, bivariate associations were studied by Chi-square test and multivariate analysis was performed by binary logistic regression. The level of statistical significance was set at $p<0.05$. **Results-** Majority of children; were males (60.4%), aged between12-17 years (59.6%), schooling at Temeke Municipality (56.8%) and had sensory disabilities (45.1%). Most of the children (69%) had one or more type(s) of malocclusion/s. The commonest type of malocclusion was crowding in the incisal segment of maxilla (23.2%) and mandible (21.1%). Majority (78.4%) of the children showed a Class I molar relationship. About (75.9%) of children with neuropsychological disabilities had malocclusions; among the children with sensory disabilities (71.6%) had malocclusions, while (66.7%) of those with physical disabilities had malocclusions. Specific disabilities were significant associated with a number of specific occlusal anomalies ($p<0.05$). Also specific disabilities were significant associated with some oral health behaviors, functional characteristics, oral habits and oral health problems. Presence of overall malocclusion in children with disabilities was significant associated with swallowing problems, performing oral habits, lip incompetence and having a previous history of toothache ($p<0.05$). In the logistic regression model, only performing oral habit, having a previous history of toothache, and swallowing problems remained significant determinants of having malocclusions. **Conclusion-** The prevalence of malocclusions among school-

going children with disabilities in Dar es Salaam, Tanzania was quite high (69%), and also malocclusions were associated with a number of factors namely; oral habits and swallowing problems, lip incompetence, oral health problems and oral health behaviors.

568. **Vos T, Barber RM, Bell B, Bertozzi-Villa A, Biryukov S, Bolliger I, Charlson F, Davis A, Degenhardt L, Dicker D, Duan L. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet.* 2015; 386(9995):743-800.**

Background: Up-to-date evidence about levels and trends in disease and injury incidence, prevalence, and years lived with disability (YLDs) is an essential input into global, regional, and national health policies. In the Global Burden of Disease Study 2013 (GBD 2013), we estimated these quantities for acute and chronic diseases and injuries for 188 countries between 1990 and 2013. **Methods:** Estimates were calculated for disease and injury incidence, prevalence, and YLDs using GBD 2010 methods with some important refinements. Results for incidence of acute disorders and prevalence of chronic disorders are new additions to the analysis. Key improvements include expansion to the cause and sequelae list, updated systematic reviews, use of detailed injury codes, improvements to the Bayesian meta-regression method (DisMod-MR), and use of severity splits for various causes. An index of data representativeness, showing data availability, was calculated for each cause and impairment during three periods globally and at the country level for 2013. In total, 35 620 distinct sources of data were used and documented to calculated estimates for 301 diseases and injuries and 2337 sequelae. The comorbidity simulation provides estimates for the number of sequelae, concurrently, by individuals by country, year, age, and sex. Disability weights were updated with the addition of new population-based survey data from four countries. **Findings:** Disease and injury were highly prevalent; only a small fraction of individuals had no sequelae. Comorbidity rose substantially with age and in absolute terms from 1990 to 2013. Incidence of acute sequelae were predominantly infectious diseases and short-term injuries, with over 2 billion cases of upper respiratory infections and diarrhoeal disease episodes in 2013, with the notable exception of tooth pain due to permanent caries with more than 200 million incident cases in 2013. Conversely, leading chronic sequelae were

largely attributable to non-communicable diseases, with prevalence estimates for asymptomatic permanent caries and tension-type headache of 2·4 billion and 1·6 billion, respectively. The distribution of the number of sequelae in populations varied widely across regions, with an expected relation between age and disease prevalence. YLDs for both sexes increased from 537·6 million in 1990 to 764·8 million in 2013 due to population growth and ageing, whereas the age-standardised rate decreased little from 114·87 per 1000 people to 110·31 per 1000 people between 1990 and 2013. Leading causes of YLDs included low back pain and major depressive disorder among the top ten causes of YLDs in every country. YLD rates per person, by major cause groups, indicated the main drivers of increases were due to musculoskeletal, mental, and substance use disorders, neurological disorders, and chronic respiratory diseases; however HIV/AIDS was a notable driver of increasing YLDs in sub-Saharan Africa. Also, the proportion of disability-adjusted life years due to YLDs increased globally from 21·1% in 1990 to 31·2% in 2013. **Interpretation:** Ageing of the world's population is leading to a substantial increase in the numbers of individuals with sequelae of diseases and injuries. Rates of YLDs are declining much more slowly than mortality rates. The non-fatal dimensions of disease and injury will require more and more attention from health systems. The transition to non-fatal outcomes as the dominant source of burden of disease is occurring rapidly outside of sub-Saharan Africa. Our results can guide future health initiatives through examination of epidemiological trends and a better understanding of variation across countries.

569. **Vyas S, Jansen HA, Heise L, Mbwambo J. Exploring the association between women's access to economic resources and intimate partner violence in Dar es Salaam and Mbeya, Tanzania. *Social Science & Medicine*. 2015; 146:307-15.**

The relationship between women's access to economic resources, e.g. employment or access to micro-credit, and experience of intimate partner violence is complex. Empirical evidence documents that in some settings women's employment is associated with higher risk of partner violence but in other settings with lower risk. Evidence also shows that these conflicting associations exist not only between countries but also within different country settings. Using two population-based data sets gathered in 2002 in contrasting Tanzania settings—Dar es Salaam and Mbeya—, we used multivariate logistic regression

to examine the relationship between women's access to economic resources and partner violence. Two indicators of economic resources were examined: whether women earned money and whether women owned a business either with someone or exclusively. In Dar es Salaam we found evidence of a higher risk association among women who earned money and who owned a business exclusively by themselves and a lower risk association among women who owned a business with someone. We found no relationship between either indicator of economic resources and partner violence in Mbeya. Other factors were similarly associated with partner violence in both settings and the strongest associations found were related to the respondents' partners: refusal to give money; alcohol use and relationships with other women. The findings support the assertion that women's access to economic resources operate differently in different country settings, thus highlighting the need for targeted prevention efforts that are relevant for the context.

570. **Vyas S, Mbwambo J, Heise L. Women's paid work and intimate partner violence: Insights from Tanzania. *Feminist Economics*. 2015; 21(1):35-58.**

Theoretical and empirical research provide conflicting views on whether women who do paid work are less at risk from violence by an intimate partner in low- and middle-income countries. Economic household-bargaining models propose increased access to monetary resources will enhance women's "agency" and hence their bargaining power within the household, which reduces their vulnerability to intimate-partner violence. Feminist theorists also argue, however, that culture, context, and social norms can impede women's ability to access and benefit from employment. This study uses semi-structured interviews conducted in 2009 to explore the implications of paid work among women market traders in Dar es Salaam and Mbeya, Tanzania. While in this sample, informal-sector work did not result in women being able to fully exercise agency, their access to money did have a positive effect on their lives and reduced one major source of conflict and trigger for violence: that of negotiating money from men.

571. **Walli NZ. Serum Vitamin D Levels In Malnourished Children Under Five Years At Muhimbili National Hospital, Dar Es Salaam, Tanzania Master of Medicine (Pediatrics and Child Health) *Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: Vitamin D is a fat-soluble vitamin that enhances intestinal absorption of calcium and phosphate. Vitamin D is metabolized in the liver and its main role is to enhance intestinal calcium absorption and mobilize orthoclastic activity. Its deficiency in children results in failure of mineralization of bones. Malnutrition is caused by an improper or insufficient diet and it is one of the major causes of mortality and accounts for 50% of deaths in children under five years of age. A study done in Karachi found that about 33.6% of severely malnourished children had rickets. Very few studies have been carried out and thus this study was carried out to give insight of the burden of vitamin D deficiency in malnourished children. **Objective:** To determine the prevalence of vitamin D deficiency in malnourished children at Muhimbili National Hospital in Dar es salaam. **Method:** This was a hospital based cross-sectional study which was carried out in the malnutrition ward at Muhimbili National Hospital for a period of nine months from May 2014 to January 2015. A total of 134 malnourished children under 5-years were recruited and classified into moderate or severe acute malnutrition and grades of stunting using anthropometric measurements. Case record forms were filled for all participants and blood samples for serum vitamin D levels were drawn. Alkaline phosphatase levels and x-ray of the wrist were taken to correlate their relationship with vitamin D deficiency. Vitamin D and alkaline phosphatase levels were determined using EIA and Abbott architect system, respectively. Data were entered in the statistical package for social science (SPSS) version 20.0. Sensitivity and specificity of alkaline phosphatase levels was determined using receiver operating characteristic (ROC) curve. Chi square and Fisher's exact tests where applicable were used to determine the univariate association between vitamin D deficiency and malnutrition. A p-value of less than 0.05 was regarded as statistically significant. Participants continued to receive treatment as per the guideline protocol. **Results:** A total of 134 malnourished children were recruited into the study and the prevalence of vitamin D deficiency was found to be 30.6%. Among all malnourished children, 101 (75.4%) were under 2 years of age with a median age of 16 months. The median vitamin D level was found to be 74.8nmol/L. The mean alkaline phosphatase level was 176.6U/L. Almost half of the participants, 64 (47.8%) were found to have severe stunting, of whom 20 (31.2%) were vitamin D deficient. Alkaline phosphatase had a sensitivity of 5% and a specificity of 94% versus vitamin D levels as per the receiver

operating characteristic curve with area under the curve of 0.501. A sensitivity of 61% and a high specificity of 95% for radiological findings versus vitamin D were found in this study. Of those who had radiological features, 25 (83.3%) had vitamin D deficiency. Presence of radiological features on X-ray had indicated higher proportion of having vitamin D deficiency (P=<0.01). Marasmic children had higher odds of vitamin D deficiency compared to those with kwashiorkor and miasmic-kwashiorkor (P=0.03 and P=<0.01, OR=10.8 and OR=3.7, 95% CI=1.356-86.236 and 95% CI=1.386-10.011 respectively). **Conclusions and Recommendation:** There was a high prevalence of vitamin D deficiency among malnourished under 5-year children and the study has highlighted the need to identify and correct that as part of treatment for malnutrition. The study also found that X-ray is a useful adjunct to detect obvious rickets in resource-limited setting and is of important diagnostic value. Large randomized control trials with vitamin D supplementation in children with malnutrition are required for elucidating the cause and effect relationship.

572. **Wella LA. Indications and complications of intestinal stomas at Muhimbili National Hospital, Dar es Salaam. Master of Public Health, *Dissertation 2015, Muhimbili University of Health and Allied Sciences.***

Background: Although there is a decreasing trend for stoma construction surgery, fecal diversion remains an effective option to treat a variety of gastrointestinal and abdominal conditions across both gender and age groups. Regardless of recent advances in techniques for stoma formation and management including sophisticated pouching appliances especially in developed world, complications are still prevalent and challenging accounting for significant morbidity and mortality. Limited information exists on intestinal stoma in developing countries, including indications, construction, care and complications associated with it. **Objective:** To determine the indications, complications of intestinal stoma within the first three months of stoma construction and associated factors at MNH surgical department **Methodology:** A prospective hospital-based study on pediatric and adult patients who underwent stoma construction surgery during the study period was conducted in the surgical department of MNH, from February 2014 to January 2015. Convenient sampling method was used. Relevant information was obtained from patients or care takers, clinical notes and the operating

team. Physical examination during three month follow up was conducted and data collected was coded and analyzed using SPSS version 18. Chi square and Fischer's exact tests were used to test statistical significance of results. **Results:** A total of 110 patients were recruited into the study. Among them, 47(42.7%) were pediatric patients with a female to male ratio of 1.04:1 and mean age of 48.7 weeks (Range 2 days to 10.5 years). Sixty three (57.3%) were adults with male to female ratio of 2.3:1 and mean age of 47.8 years (Range 16-80 years). Among pediatric patients, anorectal congenital malformation was the leading indication for fecal stoma and accounted for 72.3% of cases while Hirschsprung's disease accounted for 21.3% of cases. Others were infected saccrococygeal taratoma and sigmoid perforation each contributing 2.1%. Obstructive colorectal and anal malignances were the commonest indications for stoma surgery among adult patients and accounted for 60.3% of cases, followed by sigmoid volvulus 17.5%. Others were; perineal trauma, caecal perforation, ileal perforation, anastomotic leak, ileal tumor, enterocutaneous fistula post cesarean section and inflammatory bowel disease. Forty four point three of patients experienced at least one complication. Peristomal skin complications were leading which accounted for 55.2% of all complications, followed by stoma prolapse 22.4%, stoma obstruction 6.9% and sepsis 6.9%. Others were stoma retraction in 5.2% and parastoma hernia, 3.4%.Overall mortality was 13.7%. Most of patients (61.2%) who used stoma bags spent 5000 T.sh and above for stoma bags per day. Experience of operator, timing of the stoma surgical procedure and provision of peri-operative patient information were significantly associated with stoma complications. **Conclusion and recommendations:** The main indications for intestinal stoma are ARM and HD among children while colorectal malignances and sigmoid volvulus lead among adults. The findings of this study also confirm the available evidence that intestinal stoma complications are common problem following stoma construction surgery. Important complications were peristomal skin complications and stoma prolapse. The emergency intestinal construction procedure, inexperience of the operator and lack of peri-operative education are associated with occurrence of complications. Financial cost burden to most patients for stoma bags is unbearable. Early detection and management of large bowel malignancies, risk factors

identification and access to stoma bags can reduce the number of stoma construction and its associated complications and improve patients' wellbeing.

573. **Wibonela SA. Adherence to Universal Precautions and Its Associated Factors among Nurses Caring For Critically Ill Patients in Dar Es Salaam, Tanzania Master of Science (Nursing Critical Care and Trauma)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background; Healthcare workers are more susceptible to contracting blood borne infections. Universal precautions are safety measure designed by the Centers for Disease Control to prevent transmission of HIV, HBV and other blood borne pathogens when providing patient care. Unfortunately studies have shown that the compliance levels to these guidelines are unsatisfactory. **Aim;** was to assess adherence to Universal Precautions and its associated factors among nurses caring for critically ill patients in Dar es Salaam. **Methodology;** A quantitative cross sectional study was conducted in Critical care settings of Muhimbili National Hospital (MNH) and Muhimbili Orthopedic Institute (MOI) among nurses. Data were collected through direct observation and self administered questionnaire, knowledge, practice and factors affecting adherence to Universal Precautions were assessed. Data were entered in SPSS and analysis was done by using appropriate statistical tests. **Results;** Study enrolled 144 nurses. Among which 121(84%) were females. All participants were assessed using questionnaire and observation was conducted in only 42/144(29.2%) of participants. The mean age of the participants was 35.7 years. 81(56.3%) of participants had diploma level of education. 55(38%) were found to have good knowledge on universal precaution. 123(85.5%) reported they always wash hands. 11/38(28.9%) among those who were observed in hand washing, did wash hands before putting on gloves. 94.4% reported they always use gloves, 67.4% reported they always wear gown and 55.6% reported they always wear mask. while in observation the practice of wearing PPE was low compared to reported practice. Regarding sharps management 135(93.8%) reported good practice and among the observed participants 40/42(95.2%) demonstrated good sharps management practice. **Conclusion;** Sex and level of education of an individual significantly influences the hand hygiene practice, working station and Percieved severity significantly influenced the

practice of wearing protective gear. Training on infection prevention and control significantly influenced sharps handling.

574. Wolff J, Ngowi V, Rongo L, Kishashu Y. Using Cases to Teach Public Health at Muhimbili University of Health and Allied Sciences, *3rd MUHAS Scientific Conference,* 2015.

Background: Incorporating a student-centered method of teaching in a teacher-centered, lecture environment is a major teaching and learning undertaking requiring among other things, cultural shift. As part of the partnership between MUHAS School of Public Health and Social Sciences (SPHSS), Boston University School of Public Health (BUSPH), and The Dartmouth Institute for Health Policy and Clinical Practice (IHP), the Partners developed and conducted a workshop to explore the student-centered method of teaching with cases. **Aim:** The objectives of the workshop were to analyze advantages and limitations of case teaching in the MUHAS learning environment; provide guidelines for case development and teaching; prepare a case for a new course; practice teaching a case and receive feedback**.Methods:** During a two-day workshop SPHSS faculty developed and taught a brief case defined as "a story that illustrates an important public health concept and has an educational message". Working in small groups they also prepared guidelines for case developers and case teachers. **Results:** This paper reports the workshop outputs including the rationale for using cases for teaching at MUHAS, the limitations and challenges that may arise when teachers introduce the case teaching method into their classroom, and key lessons learned from preparing and teaching with cases during the workshop.Some highlights from the guidelines for case teachers were to Select an appropriate case (one aligned with goals and assessment), be heartfelt and passionate about chosen cases, develop facilitator's notes and discussion questions (to share with colleagues), determine time required for preparation of case, consider and develop take-home message(s), prepare for different views/interpretations, make the case materials available to students, use simple language,ensure adequate space and visual aids. **Conclusion:** Teaching with cases provides one important way of transitioning from a teacher-centered learning environment to a student-centered, interactive and problem based learning environment.

575. **Wonkam A, Makani J, Ofori –Acquah S (et al). "Sickle cell disease and H3africa: enhancing genomic research on cardiovascular diseases in African patients."** ***Cardiovascular journal of Africa.2015;*** **26(2): 50.**

Background Sickle cell disease (SCD) has a high prevalence in sub-Saharan Africa. There are several cardiovascular phenotypes in SCD that contribute to its morbidity and mortality. Discussion SCD is characterized by marked clinical variability, with genetic factors playing key modulating roles. Studies in Tanzania and Cameroon have reported that single nucleotide polymorphisms in *BCL11A* and *HBS1L-MYB* loci and co-inheritance of alpha-thalassaemia impact on foetal hemoglobin levels and clinical severity. The prevalence of overt stroke among SCD patients in Cameroon (6.7%) and Nigeria (8.7%) suggests a higher burden than in high-income countries. There is also some evidence of high burden of kidney disease and pulmonary hypertension in SCD; however, the burden and genetics of these cardiovascular conditions have seldom been investigated in Africa. Conclusions Several H3Africa projects are focused on cardiovascular diseases and present major opportunities to build genome-based research on existing SCD platforms in Africa to transform the health outcomes of patients.

576. **Wonkam A, Makani J, Ofori-Aquah S, Nnodu OE, Treadwell M, Royal C, Ohene-Frempong K. Sickle cell disease and H3Africa: enhancing genomic research on cardiovascular diseases in African patients.** ***Cardiovascular journal of Africa*****. 2015; 26(2):S50.**

Background: Sickle cell disease (SCD) has a high prevalence in sub-Saharan Africa. There are several cardiovascular phenotypes in SCD that contribute to its morbidity and mortality. **Discussion:** SCD is characterised by marked clinical variability, with genetic factors playing key modulating roles. Studies in Tanzania and Cameroon have reported that singlenucleotide polymorphisms in BCL11A and HBS1L-MYB loci and co-inheritance of alpha-thalassaemia impact on foetal haemoglobin levels and clinical severity. The prevalence of overt stroke among SCD patients in Cameroon (6.7%) and Nigeria (8.7%) suggests a higher burden than in high-income countries. There is also some evidence of high burden of kidney disease and pulmonary hypertension in SCD; however, the burden and genetics of these cardiovascular conditions have seldom been

investigated in Africa. **Conclusions:** Several H3Africa projects are focused on cardiovascular diseases and present major opportunities to build genome-based research on existing SCD platforms in Africa to transform the health outcomes of patients.

577. **Wubs AG, Aarø LE, Kaaya S, Onya H, Mathews C. Social Cognition Variables and Victimization as Predictors of Sexual Debut Among Adolescents in South Africa and Tanzania: A Multi-group SEM Analysis. *AIDS and Behavior*. 2015; 19(12):2141-51.**

Early sexual debut is common in South Africa and Tanzania, with potentially negative reproductive health outcomes. The role of violence as a predictor of sexual debut was studied, in a context of predictors borrowed from social cognition models. Data were taken from cluster-randomized trials of school-based HIV prevention interventions in three sites in South Africa and Tanzania. Analyses consisted of descriptive statistics and multi-group structural equation modelling. The basic model functioned fairly well for Cape Town, but less well for Mankweng and Dar es Salaam (low R2 values). Attitudes were the strongest predictor of intention. Adding socio-demographic variables to the model did not reduce the associations much and neither did subsequent inclusion of violence. Sexual debut was strongly associated with victimization; adding violence also substantially increased R2 for sexual debut. Besides social cognition factors, intimate partner violence should be addressed in future research on reproductive health interventions for adolescents.

578. Yasin T, Khan S, Shafiq M. "Radiation crosslinking of styrene–butadiene rubber containing waste tire rubber and polyfunctional monomers." *Radiation Physics and Chemistry.* 2015. 106: 343-347.

The objective of this study was to investigate the influence of polyfunctional monomers (PFMs) and absorbed dose on the final characteristics of styrene–butadiene rubber (SBR) mixed with waste tire rubber (WTR). A series of SBR/WTR blends were prepared by varying the ratios of WTR in the presence of PFMs, namely trimethylolpropane trimethacrylate (TMPTMA) and trimethylolpropane triacrylate (TMPTA) and cross-linked using gamma rays. The physicochemical characteristics of the prepared blends were investigated. It was observed that tensile strength, hardness and gel content of the blends increased with absorbed dose while the blends containing TMPTA showed higher

tensile strength, gel content and thermal stability as compared to the blends containing TMPTMA. Higher thermal stability was observed in the blends which were crosslinked by radiation as compared to the blends crosslinked by sulfur. These blends exhibited higher rate of swelling in organic solvents, whereas negligible swelling was observed in acidic and basic environment.

579. **Yonazi MS. Prevalence and Diagnostic Dynamics of Iron Deficiency Anaemia in Adults with Sickle Cell Anaemia Attending Muhimbili National Hospital. Master of Medicine (Hematology and Blood Transfusion)** ***Dissertations 2015. Muhimbili University of Health and Allied Sciences.***

Background: The prevalence of iron deficiency anemia (IDA) and sickle cell disease (SCD) is high in Tanzania. Evidence from other countries, suggests that the prevalence of IDA in SCD is low. There is limited information available on the prevalence of IDA in SCD in Tanzania. This is compounded by the challenges in the diagnosis of IDA in SCA. **Aim:** To determine the prevalence, diagnostic models and factors associated with IDA in adults with SCD at Muhimbili National Hospital (MNH). **Methods:** This was a descriptive cross-sectional hospital based study involving steady-state adult individuals with SCD who attended the SCD Clinic at MNH, between May and December 2014. A structured questionnaire was used to collect socio-demographic and clinical information. Venous blood samples were taken for blood count and biochemical iron studies. Bone marrow iron status was determined amongst a subset selected using low mean cell volume (MCV) and mean cell hemoglobin (MCH). Six diagnostic models for IDA in SCD were proposed and compared with bone marrow iron status. Chi-square test was used for categorical variables, and student t-test for independent sample means. Logistic regression was used to analyze factors associated with IDA in SCA. **Results:** A total of 170 individuals with SCA aged 18 to 51 years (65.3% females) were enrolled. Prevalence of IDA ranged between 16.5% - 48% using the seven diagnostic models. The sensitivity and specificity for diagnosis of IDA using transferring saturation (TSat) was 47.6% and 81% respectively, whilst for serum ferritin were 71.4% for both parameters. The highest specificity, 95.2% was observed using TSat+Ferritin and TSat+ferritin+MCV models. However overall performance in the receiver operating curves (ROC) curves was greater for serum ferritin than any other tests (AUROC =0.765, p=0.003, 95% CI 0.615-0.915).

Low MCV was found to be the predictor of IDA in SCA. Age, sex or history of blood transfusion was not found to be associated with IDA. **Conclusion:** The prevalence of IDA in adults with SCD is high. Different models showed a variation in detection and accuracy of diagnosis of IDA. Serum ferritin below 100µg/L was found to be the best test for diagnosis of IDA. Further research is needed to determine the feasibility and cost of determining iron status in SCD.

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